PAPER TRADE JOURNAL

NOVEMBER 23, 1944

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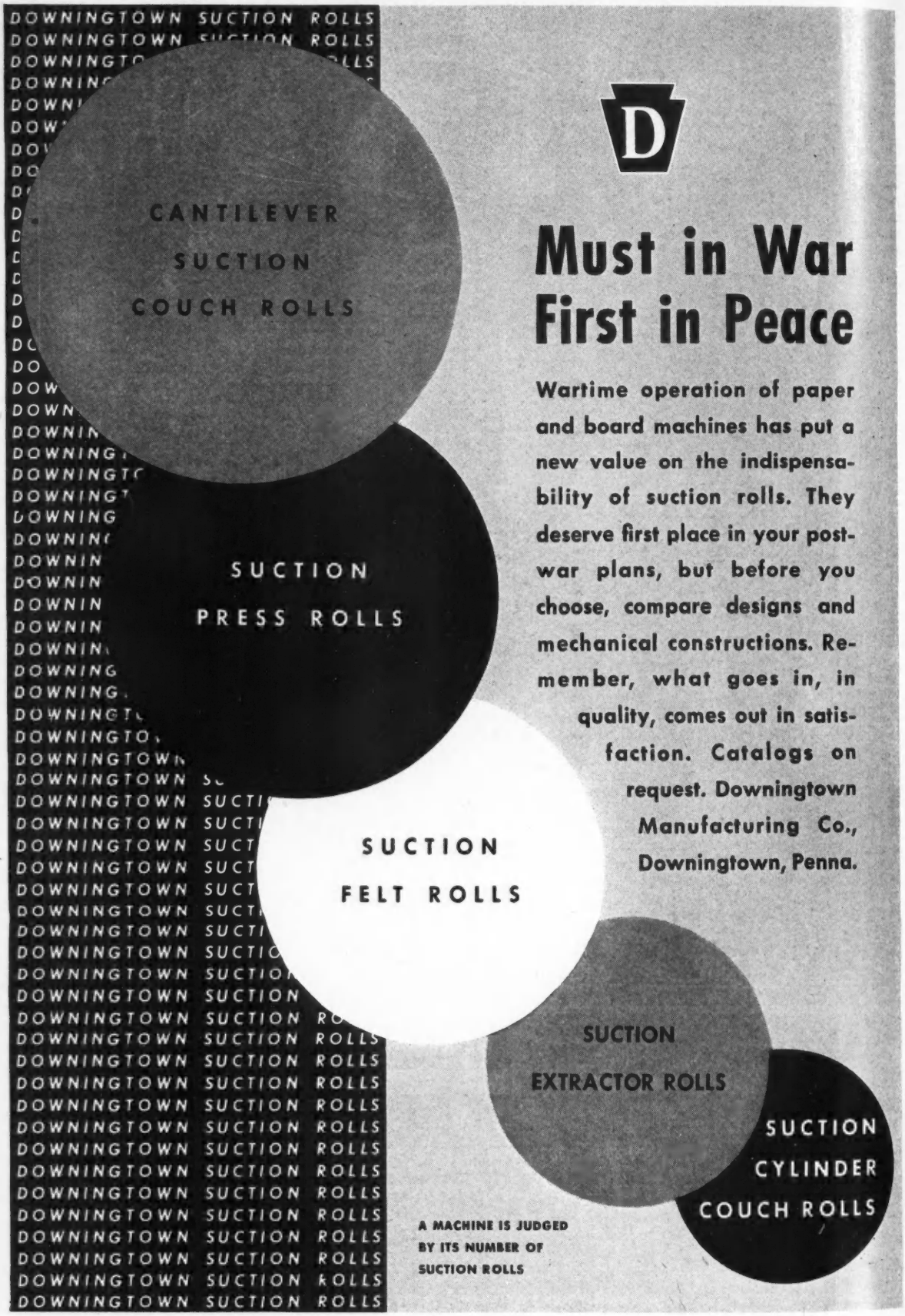
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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.
Established 1872

Volume 119 Number 21

Published every Thursday by Lockwood Trade Journal Co., Inc.

Executive and Editorial Offices: 15 W. 47th St., New York 19, New York, U. S. A.

Tel. BRyant 9-0860 New York 19, N. Y.

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Subscriptions: (Payable in advance) By the year $4.00; Single Copy 10 cents.

Postage Extra: To Canada $2.00; To Other Foreign Countries $3.50.

Member Audit Bureau of Circulations.

PAPER *established Feb. 17, 1899, combined with* PAPER TRADE JOURNAL *Nov. 16, 1899.* PAPER *established Sept. 21, 1910, combined with* PAPER TRADE JOURNAL, *Feb. 19, 1925. All rights to the above titles reserved.*

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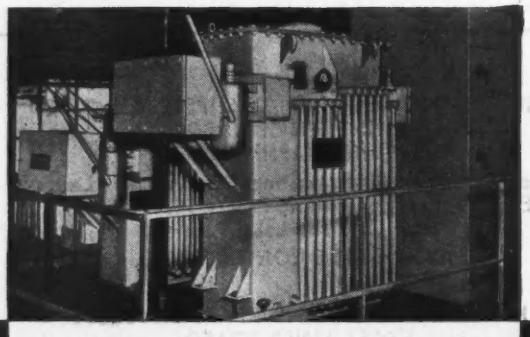
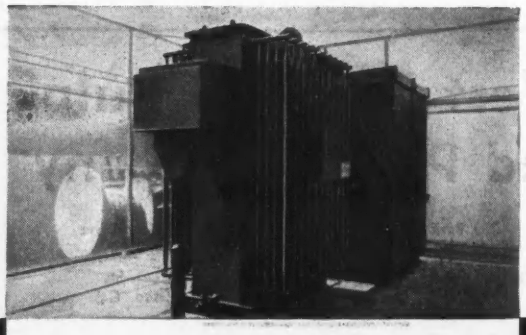


Typical indoor installation of G-E unit substation (750 kva) with Pyranol transformer section and metal-enclosed air breakers serving three secondary circuits



G-E outdoor load-center unit substation (750 kva) in space-saving location close to building wall

Vol. 119, No. 21

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

November 23, 1944

Post-War Plans In Paper Industry Call For Extensive Machinery Replacements

By William G. MacNaughton

As a result of the reduced maintenance that has been inevitable as well as the steady progress of obsolescence, it is unquestioned that as soon as the war is over, extensive replacements of equipment to restore or improve plant efficiency as well as the installation of new machinery will keep the pulp and paper machinery builders busy for many years. From surveys which have been made it is estimated that purchases of machinery and equipment during the early post-war years will amount to $200,000,000.

As to the prospects for new pulp and paper mills* since prior to the war the industry was operating at considerably less than capacity, it appears likely that for a time thereafter few new plants will be built in this country.

Marginal mills which were put back into operation to supply the war needs will probably again revert to their previous products or become idle.

It is true, however, that at least three additional plants for the production of bleached sulphate pulp are planned for Canada, two of which are by American companies.

The post-war prospects regarding chemical pulp are by no means clear. On one hand there are some who are confident that there will be a world shortage, while others are of the opinion that with the return of peace, the chief export market will again be United States, and that European shipments will provide the usual competition for domestic and Canadian pulp mills.

As to paper and paper board, it would appear that since the prewar capacity was in excess of the outlets, with the cessation of the war demand for these products, it might reasonably be concluded that without further additions the present plants would be sufficient to fill the domestic needs and also supply what may be required for export.

During the years of war which may continue for some time longer, the mills have been limited by shortages of man power, critical materials and government restrictions for making more than the most essential repairs or emergency replacements. In cases where plants are on papers or products for the war, some new vital equipment has been obtained which may be useful on the return of peace.

In recent years considerable improvement is known to have been made in the steam and power plants of the paper industry but the rise on the average has been largely due to the new mills which were built during the decade before the outbreak of war.

In a recent survey by TAPPI Committee on Heat and Power on post-war objectives for paper mill steam plants, it was found that of 700 paper mills in the United States, in 38% of those covered, the combined operating efficiency is about 82% which is quite good. However, the other 62% of the steam plants operated at an average efficiency of 72%.

It was calculated that if the mills in the lower bracket could increase their steam plant efficiency to the average of the higher there would be an equivalent saving of more than a million tons of coal per year in the paper industry.

The survey also showed that 26% of the plants operated their boilers at pressures below 200 pounds. A considerable percentage reported having no combustion control although investigation has shown that combustion control apparatus can be installed and paid for out of savings in one or two years.

(Continued on page 113)

WILLIAM G. MACNAUGHTON

The author of this article is among the outstanding technical men of the American paper industry. He is long and widely experienced in the practice of pulp and paper manufacture in the United States and Canada. After a number of years of practical experience in paper making, he became secretary of the Technical Association of the Pulp and Paper Industry, serving in that capacity until 1927 when he resigned to reenter the engineering field of the industry. He was one of the original members of the Technical Association of the Pulp and Paper Industry and was one of its first officers. He is now engineer with the Newsprint Service Bureau, New York.

* The views regarding new mills are the author's and are not wholly shared by the PAPER TRADE JOURNAL.

Post-War Outlook in U.S. and Canada For New Pulp and Paper Mills

By Stillman Taylor, Associate Editor Paper Trade Journal

Plans contemplated for the production of more paper and for converting it into new and improved products reflect the optimistic view widely held, not only within the industry but also to a considerable extent by some financial houses and by the investing public. The present capacity of the industry is large —the production ratio for the year to October 16 averaged 89.9%—and while a large part of the 35% of current output now required by the military and other government uses may be eventually turned back to trade channels, the greatly extended uses for paper in various forms will also substantially increase its consumption far above the tonnage used in pre-war years. Consumption of paper of many standardized types has been steadily increasing for many years. The consumption curve has been consistently upward. Before the present war the per capita consumption had been estimated as high as 264 pounds. Since the war, many improvements in many types of paper have been made and this stimulus promises to be continued at a sharply accelerated rate in the post-war period.

New mills to produce both pulp and paper in integrated low-cost plants, appear an attractive possibility as the end of the war approaches. To meet the keen competition which is certain to arise after government regulations and restrictions are removed, many of the older and relatively high production cost plants will scarcely be able to be operated at a profit. As Allan Hyer, of the Machinery Advisory Committee for the industry has stated in the last committee report, the demand of mills for new and replacement machinery and papermaking equipment will be tremendous.

From announced plans for expansion and from reports indicating contemplated increase in capacity in the immediate post-war years, it is expected that many of the larger United States manufacturers will substantially extend their production facilities. Some concerns are adding to their timber holdings, others are prepared and are preparing to erect additional plant capacity to existing modern mills. Technological advances have been so stimulated by the requirements of war that substantial improvements have been made and new products have been developed. By-products, the rapid growth of plasticized paper and plastics, and the utilization of lignin to form new products for the industry, all foreshadow an increase in the existing capacity of the pulp and paper industry. This will necessarily require the construction of new buildings, and the installation of the most modern machinery and equipment. Although current reports do indicate the expectancy of considerable expansion as soon as it is possible to procure materials after victory, the greatest period of expansion is likely to be somewhat later. All industry including the paper and pulp industry, is disposed to resume peacetime production about where it left off when the wartime schedule of operations began. Many concerns, however, have so greatly exceeded the pre-war level of output, that they can easily begin their commercial activities at a higher ratio than in the past.

As the demand for pulpwood will probably continue heavy after the war, the wood supply, now most critical, will continue a major problem for the industry into the post-war years. This is reflected in the acquisition of more acres of timberlands by many pulp and paper mills. It is also shown in the interest of several large lumber concerns who are now and have for some time past been investigating the possibilities of the pulp and paper industry. A late report states that paper mills on the Pacific Coast are taking a long range view of the pulpwood situation. To be assured of an adequate supply of pulpwood there has been an exchange of ownership of approximately 700,000 acres of woodland, some of it covered with second growth timber. Some railroads too, are holding timberlands for the future.

One of the many purchases of forest land occurred during the first of this year when the Nekoosa-Edwards Paper Company was the successful bidder for 45,117 acres of land in Oneida County, Wisconsin. The Marathon Corporation and other leading paper concerns have also acquired new timber holdings. The acreage of forest lands in the Southeastern States acquired for potential pulp and paper production is quite widely believed within the industry as very substantial. Several new mills were contemplated in this region before the war but have been deferred until the post-war period. When the Southern mills, which represents some 84% of the kraft paper and paper board production were built, one of the major considerations, if not the principal one, was a location on tidewater. This decision was somewhat at variance with the opinion advanced by the late Dr. Herty who advocated building the mill in the center of its forest lands and harvest the pulpwood in a circle of 360 degrees. The large mills which did not follow this advice have been obliged to go back further and further in long narrow lanes to bring out pulpwood, which has naturally added to the cost of this vital raw material.

Marathon's Building Program

The largest building project announced this year is that of the Marathon Corporation, which some time ago authorized the issuance of $5,000,000 in preferred stock to finance a building program which includes a 90,000 ton bleached sulphite pulp mill at Marathon, Ontario, Canada. The corporation has announced that a new town will be developed and named in honor of D. C. Everest, its president. Large tracks of Canadian timberlands located near the site will be available, as this acreage is owned by the Canadian subsidiary of the corporation.

The construction of this mill and town situated on Lake Superior, near Peninsula, will have a dock 1,300 feet long by 450 feet wide, a modern hospital, post office, bank, stores, dry cleaning and laundry plants, a hotel, theatre, modern homes and recreational facilities. The Canadian Pacific Railway will build a spur line into the new town and there will be access also to the Trans-Canada Highway. The mill and its auxiliaries will cost about $8,500,000 and the

townsite $1,500,000. The dock, on which the mill will be built, will provide storage for 80,000 tons of coal. It is estimated that about 600 men will first be employed and that the annual payroll will amount to $2,000,000, and that the purchases of equipment and material in Canada, plus the tax outlay, will cost the company about $3,000,000 annually.

Kimberly-Clark to Build in Canada

The Kimberly-Clark Corporation of Canada, a wholly owned subsidiary of the Kimberly-Clark Corporation, Neenah, Wis., will build a new creped wadding mill at Kapuskasing, Ontario. Cola G. Parker, president of the company estimated the cost of the building at $350,000, but the propect also calls for the erection of houses for employees and the total cost, which will not involve any public financing, will be more than $1,000,000.

The initial equipment will consist of one creped wadding machine, with auxiliary equipment.

Brompton to Build Sulphate Pulp Mill

The Brompton Pulp and Paper Company, East Angus, Quebec, is now completing a sulphate pulp mill at Red Rock, the former incompleted Lake Sulphite property. Some lumbering operations are now being carried on. It is anticipated that providing equipment and materials are available, the mill will be in operation in the fall of 1945. Reports indicate that current progress has been made only by overcoming a number of difficulties, particularly that of priorities, requiring the authorization of both the Canadian and United States governments.

War Defers Newsprint Mill

The project of the Tennessee Valley Paper Mills, Knoxville, Tenn., was started before the war. Construction of this newsprint mill has been deferred until materials are available.

To Build New Bleach Plant Near Vancouver

A general contract has been awarded for the erection of a new bleach plant to improve the quality and color of pulp, to be constructed at Ocean Falls, B. C., for the Pacific Mills Limited, of Vancouver. It will involve an expenditure of about $40,000 with an additional amount for installation of equipment. The design was by the company's engineers. According to J. A. Young, vice president of the company, the current contract is part of the big program of construction started some three years ago at the Ocean Falls plant. When the entire project was completed last month, total expenditures were approximately $500,000.

Reports on Building Outlook in Alaska

Alaska presents a promising outlook for the further development of United States pulp and paper production and offers an opportunity for expanding our exports of these products, particularly to the

U. S. Forest Service Photo

A Thrifty Stand of Young Spruce with Hemlock on Mountain Slope Near Bond Bay, in the Tongass National Forest, Alaska

U. S. Forest Service Photo

IMMATURE HEMLOCK AND SPRUCE FOREST AT BOND BAY, IN TONGASS NATIONAL FOREST, ALASKA

Orient and Latin America, according to an article appearing in the October 28 issue of Foreign Commerce Weekly, official publication of the Department of Commerce.

The author, Mary E. Poole of the Industrial Projects Unit, Bureau of Foreign and Domestic Commerce, points out that this year the U. S. Forest Service, Department of Agriculture, has extended an invitation to post-war minded pulp and paper men throughout the country to investigate the virtually untouched resources of Tongass National Forest, which covers approximately 16,000,000 or roughly 73% of the entire southeastern Alaska peninsula.

Almost all of the timber in the Tongass Forest, estimated at more than 78,000,000,000 board feet, is of high-grade pulping species, predominantly western hemlock (74%) and Sitka spruce (20%), with small amounts of western red cedar and Alaska yellow cedar. In some places the forest cover extends to an altitude of 2,750 feet, but it is estimated that 75% of the commercial timber lies within 2½ miles of tidewater and below the 1,500-foot contour.

Preliminary studies indicate that under a sustained-yield system of management the Tongass Forest would provide annually approximately 1,600,000 cords of wood. If used only in the manufacture of newsprint, this volume would yield substantially more than 1,000,000 tons of that basic commodity.

The warm Japanese current provides the Alaska Archipelago with a moderate climate. At sea level snow rarely remains on the ground during the winter, and the streams and protected waterways are ice-free the year around. Other advantages are outlined.

The inescapable fly in the ointment is the fact that a pulp and paper industry could not be established there in a small way—running into millions of dollars per plant. In addition, large repair shops would be required in order to obviate the need for shipping machinery back to the States for servicing.

Approves Plant to Use Pulp Mill Waste

The War Production Board approved the $2,247,000 project of the Willamette Valley Wood and Chemical Company for a plant near Eugene, Ore., to produce industrial alcohol by the hydrolysis of wood wastes. The government agency stated that the plant could not be brought into operation before the spring of 1945, and the new plant's capacity of 4,100,000 gallons a year, will not of itself have any great significance in the 1945 alcohol program. Its value will lie chiefly in establishing the practicability and efficient design of additional plants. Suitable wood waste supplies appear to be such that over 100,000,000 gallons of annual alcohol capacity could be predicated upon this type of operation if it becomes necessary to give up the use of grain because of its need as food. The Willamette Valley project is therefore, purely an exploratory operation on a new non-food raw material. According to Chemical and Metallurgical Engineering the sulphite digest and wash liquors which have to be disposed of by Canadian mills as waste, aggregate approximately 250,000 tons a year. This would be equivalent to 35,000,000 gallons of alcohol a year. On the same basis the United States could secure an alcohol output of 5,000,000 gallons annually from its waste sulphite liquors.

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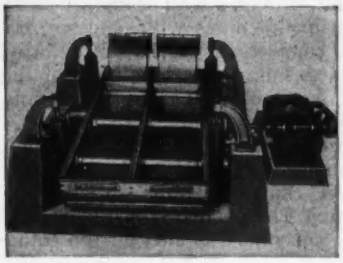

✓ *Pulp Screening*

The JONSSON SCREEN is attracting extraordinary interest among pulp producers who look for quantity, quality and low cost from knotters, coarse screens and fine screens on all grades of pulp.

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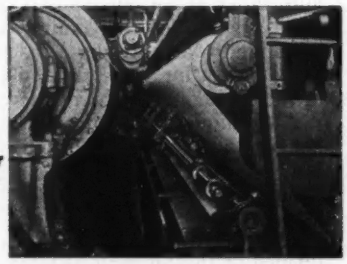

The VICKERY FELT CONDITIONER is depended upon to keep press felts continuously in shape, avoiding mid-week shut-downs for felt washings and assuring uniform finish and maximum water removal at the presses.

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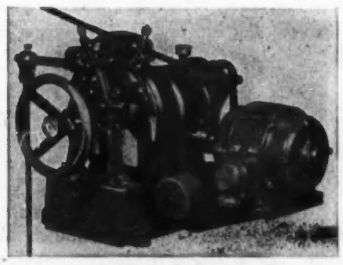

The BIRD CONSISTENCY REGULATOR is the last word in accurate, dependable, instant control of stock consistency at all points in the pulp and papermaking process.

✓ *Roll Surface Maintenance*

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Brazil Building a $10,000,000 Mill

The Brazilian Government authorized some time ago the establishment of a pulp and newsprint industry, estimated to cost about $10,000,000. President Getulia Vargas of Brazil, requested Klabin do Parna de Cellulose S.A., Sao Paulo, Brazil, to carry out this work. The anticipated productive capacity will be 40,000 tons of bleached and unbleached sulphite pulp, 48,000 tons of newsprint, and 30,000 tons of groundwood a year.

The mill and town is being created out of a comparative wilderness covering some 70,000 acres. Towns are being built, provided with schools, churches, theatres and housing facilities with modern sanitary conditions. A complete networks of highways has been constructed to link the various units of this development and to overcome the very difficult transportation difficulties.

The new mill is being constructed in units, the pulp unit having been completed recently. The mill is located at Monte Alegre, State of Parana, Brazil. Pulpwood from the Parana Pine, which is abundant, will be used. American concerns supplied all the equipment.

Mexico to Erect Pulp and Paper Mill

The projected establishment of plants for the manufacture of chemical and mechanical pulp, paper, and by-products such as caustic soda, chloride and derivatives at Atenquique, Mexico is regarded by local authorities as an outstanding development in the industrialization of the country and an important contribution toward making Mexico self-sufficient as concerns newsprint, it is stated in a trade report received at the Department of Commerce.

Atenquique was chosen as the location for a number of reasons, among which can be named—its situation near the heart of the forest regions of the Nevado, Volcan de Colima, and Serrania del Tigre (whose stands of various kinds of timber are large enough to supply the plant); its location at the confluence of the Serrania del Tigre and Tuxpan rivers, from which power can be derived; its easy communication facilities; and its nearness to the salt mines of Coyutian and the lime pits of "Huescalapa."

The pulp and paper plant will have an initial investment of $2,065,000; the hydro-electric plant is expected to cost $1,032,500, and $206,500 each will be required for forest exploitation and preliminary preparation of pulpwood, and for road construction between forest and mill.

The internal demand for paper is steadily increasing and present national production is totally insufficient to meet the demand. Mexico's entire domestic economy, as well as the regional economy itself will be greatly benefited by this project since the new enterprise in addition to creating greater sources of work will undoubtedly stimulate the development of other industries in the same general locality.

To Build Board Mill in Puerto Rico

Contract was awarded last spring to construct a paper board mill for the Puerto Rico Development Company, San Juan, Puerto Rico. The mill is one of several projects being developed by the company to help raise the standard of living in this island possession of the United States. The mill is being erected to meet the present requirements for about 40 tons a day of paper board for the manufacture of containers and boxes, but the productive capacity can be doubled with a few changes when the demand increases. The chief raw material will be waste paper collected in Puerto Rico, supplemented by pulp made from bagasse obtained from nearby sugar cane mills. The paper board mill will be built in the suburbs of San Juan, which is the chief port and the largest city on the island. It will be of modern design, constructed of reinforced concrete and calculated to withstand the hurricanes which occur periodically.

The main equipment will consist of a six cylinder paper board machine, with about 90 inch trim and equipped to make either rolls or sheets. The machine room has a modern vapor exhaust system and traveling cranes. A waste paper warehouse will provide facilities to store, sort and bale paper stock according to grades. From here it will go to the usual stock preparation system consisting of beaters, jordans, rifflers, screens and deckers. Bagasse, in bales, is to be stored in large outdoor piles holding a nine month supply. From the storage piles the bagasse will be conveyed to the pulp mill where it will be cooked in large rotary digesters. It will then be washed and refined before mixing with the other raw materials used in making paper board. It is planned to install boilers of sufficiently high pressure that the steam required for processing will be adequate to make enough power to make the mill self-contained. However, the mill will be provided with a hookup to the local power company's transmission line.

Starts Paper Bag Specialty Business

A. B. Kehr, well known to the trade for the past twenty-five years, has established his own business for the design and manufacture of a complete line of protective packaging products. Under the name of The Kehr Paper Products Company, with plant and offices in the Terminal Commerce Building, 401 North Broad street, Philadelphia, every modern facility is provided for the large scale production of White M. G., waxed, glassine, laminated, cellophane and special material bags for every purpose. Particular emphasis will be placed on improved packaging for bakery products, potato chips, frozen and dehydrated foods, nuts, candy and ice cream. The Terminal Commerce Building offers exceptional facilities for loading, shipping and plant operation, with direct track-to-floor freight service and large, well-lighted manufacturing space. New high-speed equipment assures fastest possible delivery of plain and printed bags of every kind and size.

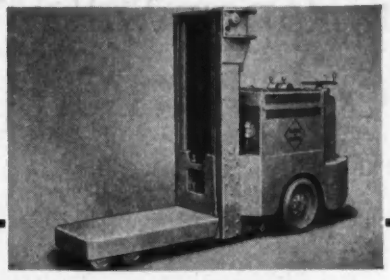
F. H. Weismuller to Direct Sales

F. H. Weismuller has been appointed director of sales of the Pigments Department, E. I. du Pont de Nemours & Co., at Wilmington, Del. Mr. Weismuller, who was production manager, succeeds John F. Daley, recently made general manager of the department.

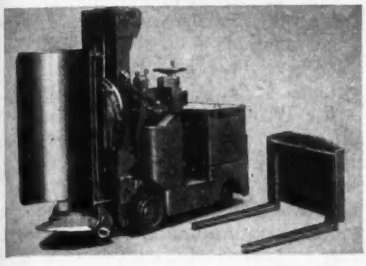
R. A. Kaiser, assistant production manager, will succeed Mr. Weismuller, and C. E. Rossee, manager of the Baltimore, Md., pigments plant will be transferred to Wilmington to become assistant production manager.

C. E. Smith, in charge of silica gel operations at the Newark, N. J., plant, will succeed Mr. Rossee. All organization changes are effective immediately.

Mr. Weismuller has been with the Du Pont Company 18 years. He was born in Brooklyn, N. Y., and was graduated from Cooper Institute in 1922 with a B.S. in chemical engineering.



Scrap, "Hay", and Finished Stock



SOME of the Elwell-Parkers in this great Mill are old-timers, but loads move with a will, day and night. Bales of waste; "hay" from the cutters; flat sheets; 1½-ton rolls—Elwell-Parkers speed each over its route, and back for the next trip.

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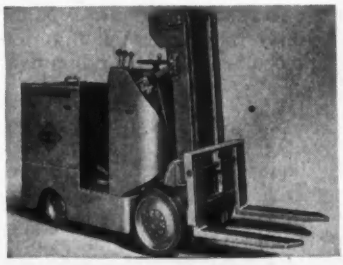

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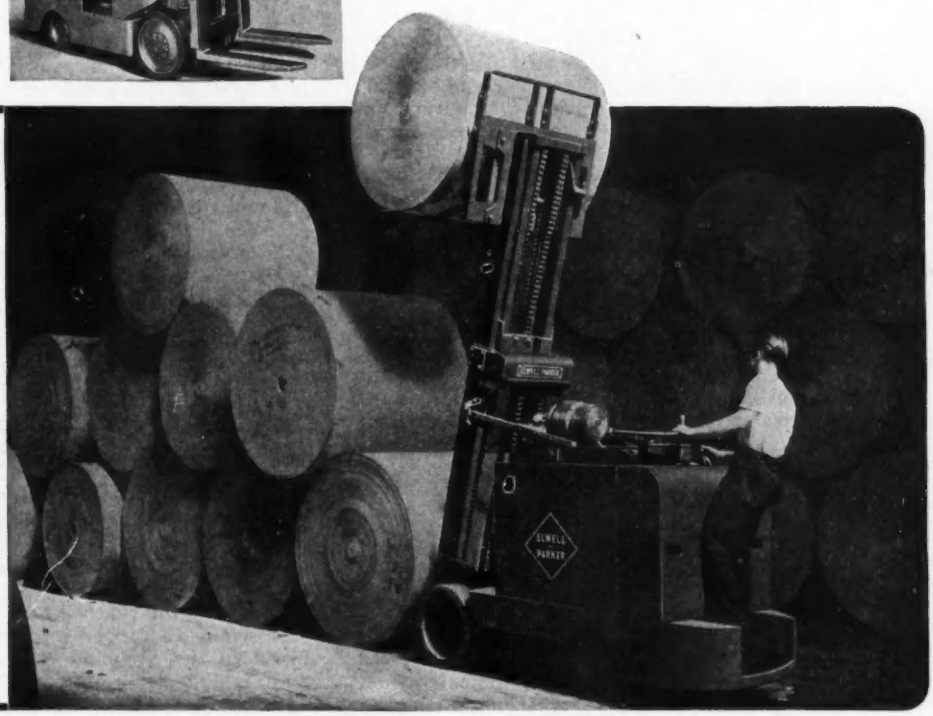

ELWELL-PARKER

POWER INDUSTRIAL TRUCKS

Machinery Available for Paper Mills Now and After Hostilities Cease in Europe

By Allan Hyer, Chief Distribution Sect., Pulp and Paper Div., W.P.B.

In the second quarter of this year an amount of material was made available for the production of new paper mill machinery. At a time when war production was at peak figures and materials scarce, this was a clear recognition of the importance of paper and paper board and the necessity for any reasonable help in maintaining and increasing the output.

Emphasis on Military Requirements

The distribution of this new equipment followed the logical basis of serving the most important things first. Preference was given to applications where there was evidence of pulp conservation and increased production through the use of secondary fibers such as waste paper. In many instances, ratings were given to prevent production losses by replacement of worn out and obsolete machinery. In all cases the emphasis was on military requirements and the production to fill them.

At first, the progress was slow. Machinery plants were not in position to accept many paper mill orders because of war work that had been occupying almost the full plant schedule for over two years. Even the paper mills had become so accustomed to getting along without that it was sometime before they could prepare plans for purchasing new machinery. During this period the War Production Board has been urging that applications be filed.

Rapid Changes in Past Few Weeks

The past few weeks have brought about rapid changes. The encouraging reports from all war fronts has accelerated reconversion plans and caused the hopes of all that VE Day (Victory in Europe) will soon be a new date for the history books. But regardless of our feelings and our hopes, there can be no let down in the production of war materials or in participation in war activities. The need for all out effort is greater now than ever before and anything less than our best will not be enough.

To Increase Production of Paper

Although the total war production has changed very little in volume, there have been changes in some types of contracts so that many machine shops have already had a reduction in war orders. This has permitted an increased volume of paper mill machinery and has also permitted a broadening of the policies governing the rating of paper mill machinery. Whereas definite war time essentiality was necessary at that time, it is now possible to give consideration to what might be called post war cases. The reason for this is plain—to increase the overall production of paper and paper board.

During the war years the production of paper and paper board has established new records for all time highs and still the supply is far short of the demand. There are indications that the military demand after VE day will be almost the same and this added to increasing civilian needs will aggregate amounts beyond the present capacity of the paper mills even if pulp and labor are plentiful.

First Consideration To Replacements

The wear and tear of the war years has had its effect on paper mill machinery, it is obvious that first consideration must be given to the production of replacements on a general scale.

For several weeks the War Production Board has been approving applications for all types of paper mill equipment. This program covers equipment that is essentially machinery used for paper mill purposes only. The basis of approval will be the absolute need for equipment to maintain continuous operation or to increase production by improved efficiency or better operating conditions. A high percentage of operation on reserve production orders will be a substantial recommendation for approval.

To Assist on General Equipment

Effort is also being made to assist on equipment other than recognized paper mill machinery such as boilers and turbines and the concurrence of the Paper Division will be given in support of such cases as they appear to be urgent. Through the process of reconversion now in plan, it is expected that the transition in the machinery manufacturers plants from war time production to normal production will be consummated with a minimum of delay. This is due partly to the fact that the war work has been accomplished with their usual manufacturing facilities and no extensive plant changes will be required. It is expected that the productive capacity throughout the industry for the building of paper mill equipment will be twice as great as that of normal or pre-war level.

Applications Should be Filed Quickly

The uncertainty of VE Day and the fact that the rating system will be continued until at least that time makes it imperative that applications be filed according to the terms of Order L-83—and quickly.

Post-War Plans for Holland

Reports reaching Netherlands Government officials both here and in London indicate that the Nazis are engaged in wrecking the paper industry of the Netherlands. It is expected that the task of reconstruction involved in the paper industry will be huge. To facilitate the collection of information which will be essential to proper reconstruction the Economic, Financial and Shipping Mission of the Kingdom of the Netherlands is engaged in the collection of all technical information dealing with all phases of the paper industry.

It is contemplated that all of the suppliers of paper mill equipment will be asked to supply information concerning their products, both now manufactured and contemplated in the future.

The Paper Industry Division of the Economic, Financial and Shipping Mission of the Kingdom of the Netherlands has its office at 220 East 42nd street, New York City, New York, Eli de Vries, Advisor.

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New Brazilian Mill Expected Soon to be Producing Sulphite Pulp

The initial stage of the construction of Brazil's first wood pulp and newsprint mill is rapidly reaching completion, and it is expected that the sulphite pulp mill will soon be producing unbleached pulp. This mill is being built by Industrias Klabin do Parana de Cellulose, S. A. of Sao Paolo in Monte Alegre, State of Parana, Brazil. The anticipated capacity of the project is 40,000 tons of newsprint and 30,000 tons of ground wood, annually.

To Run 1400 Feet Per Minute

The present plans have provided for the production of newsprint on a 192 inch Fourdrinier, designed for a speed of 1400 feet per minute, board on a 100 inch five-cylinder board machine and pulp on a 120 inch pulp drier. Provision has been made for future expansion of the equipment in the mill as it is now designed.

Thorough surveys were made in the pine forests to determine the most advantageous location for the mill. The final site was chosen as the best, from the standpoint of woodland operations, health, water and power supply, and potential transportation facilities. The resulting projects created in a comparative wilderness, will include schools, churches, movies and housing, in addition to the manufacturing facilities.

Arrangement of Various Departments

The site plan has been prepared to show the general arrangement of the various departments of the mill. The mill is situated on the slope of a hill, so located, that the wood is transported downhill to the woodroom and grinder room. The finished paper is either stored in buildings at the south end of the site plan or shipped out directly.

To Manufacture Chlorine at Site

Chlorine is manufactured at the site. The overland power lines, transmit power from the company's hydroelectric station, which is approximately twenty miles distant. The mill water supply is pumped from a diversion dam in a nearby stream, and the effluent is discharged into the adjacent watershed.

The Klabin interests are represented by Edmund E. Levin, whose office is located in the Empire State Building, in New York.

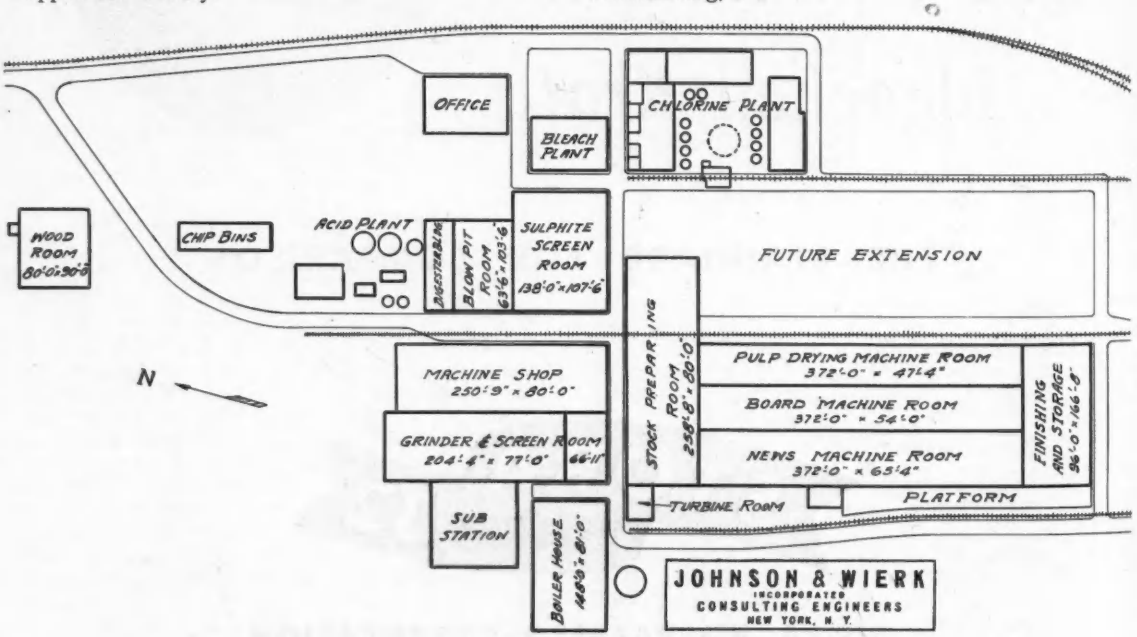
The general consulting engineers in the United States are Johnson & Wierk, Inc. of New York, who prepared the plans in close cooperation with the owners.

Wm. H. Allen to Be Sales Manager

Stanley J. Klein, president of Empire Box Corporation, announces the appointment of William H. Allen as sales manager of a new created Specialties Division. Mr. Allen brings to Empire a thorough knowledge of sales promotion of specialties, having been associated with Sutherland Paper Company for the past fourteen years.

As head of Empire's Specialty Division, Mr. Allen will immediately begin to develop various packages of special interest to all in the food industry now studying and planning post-war merchandising. And, he will introduce an assortment of stock items that will interest his many jobbing friends.

Thus, Mr. Klein points out, Empire assumes another advantage to serve package consumers—with its complete staff of specialists, and its vast physical facilities that include converting plants in Garfield, N. J. and South Bend, Ind., and its board mill in Stroudsburg, Pa.



GROUND PLAN OF BRAZIL'S FIRST WOOD PULP AND NEWSPRINT MILL

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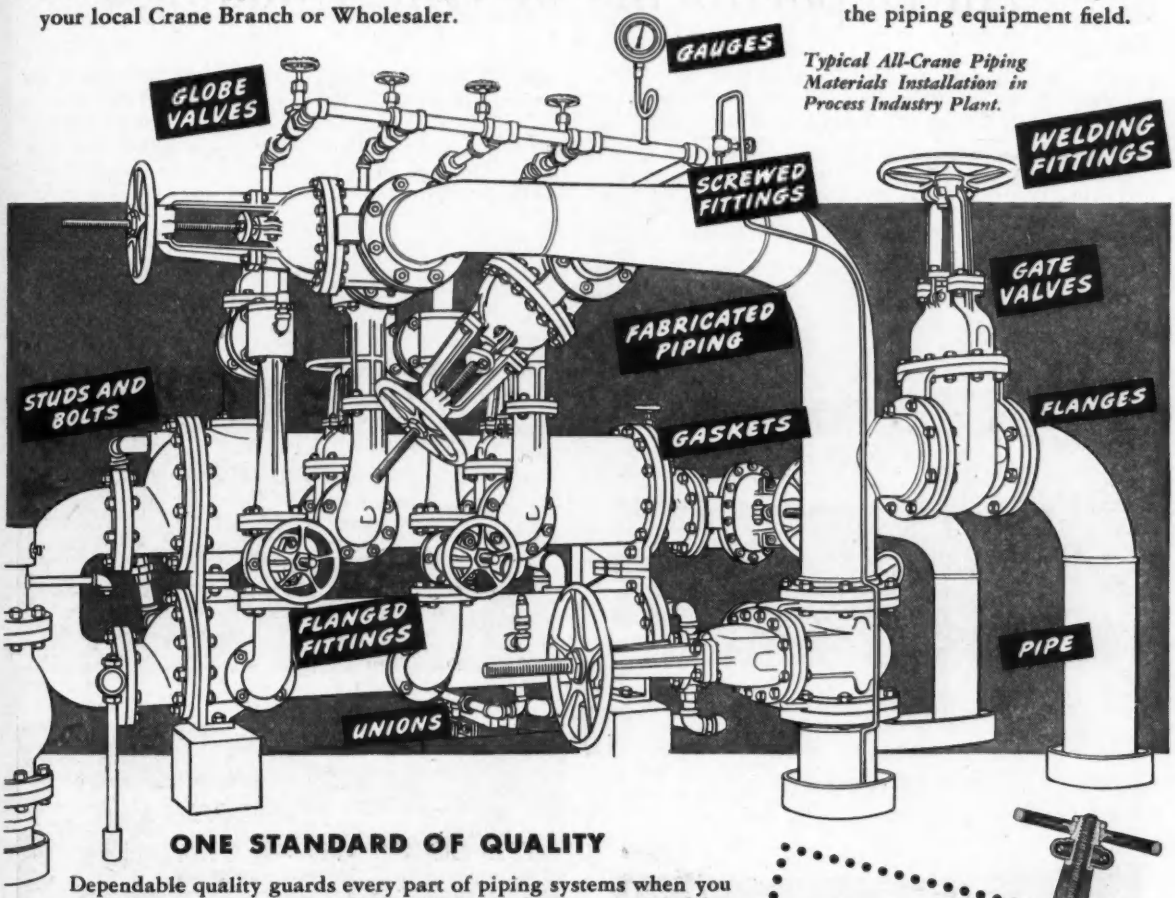

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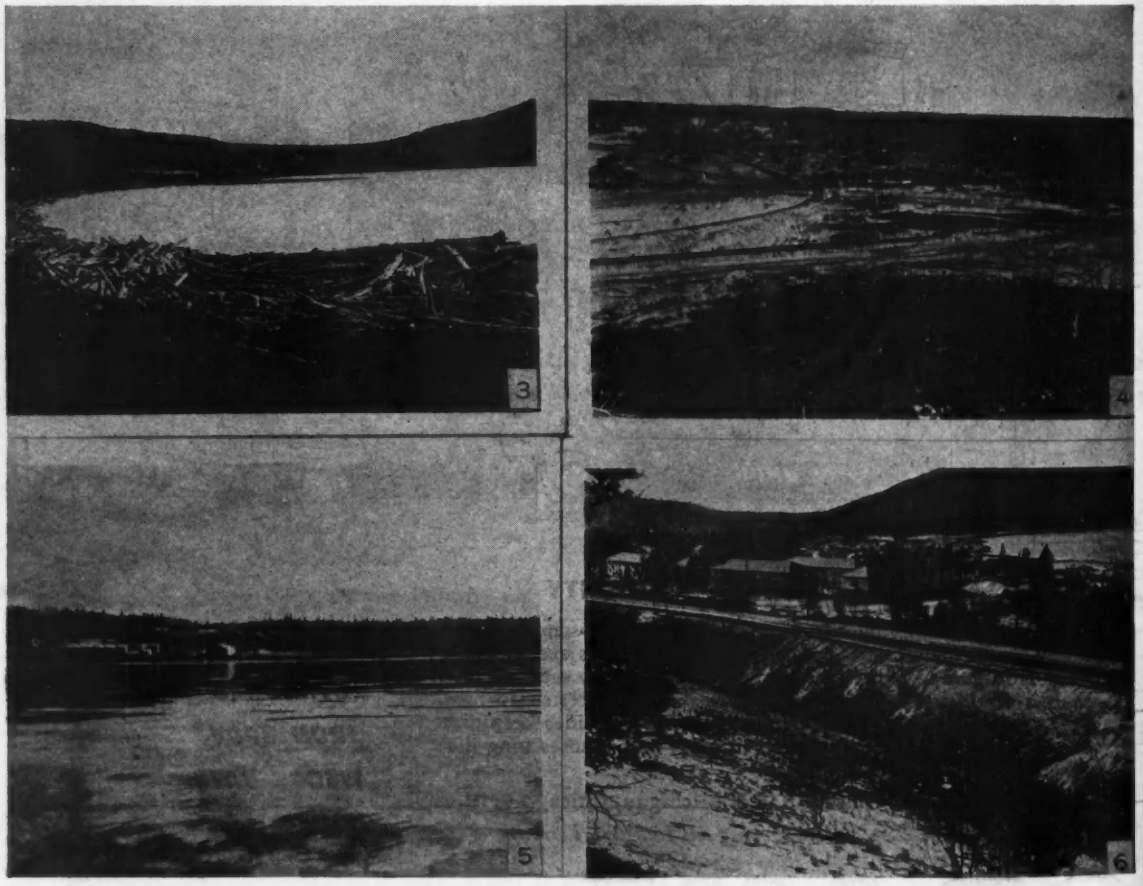
Marathon Paper Mills of Canada Include All Departments in One Building

The Marathon Paper Mills of Canada Limited has changed the name of the site at which its new development is located from Peninsular, Ont. to Marathon, effective as of this date, November 23, 1944.

The mill is designed to produce an average of 270 tons per day of unbleached kraft pulp. The best of equipment and material has been incorporated in the design and most of this has already been purchased. It is interesting to note that all departments, including the office and excluding the wood handling and chipper mill, have been incorporated into one building, so to speak, for accessibility and economy. The differ-



STARTING WORK ON NEW PLANT OF MARATHON PAPER MILLS OF CANADA, MARATHON, ONT.

FIG. 1—Hotel under Construction, Sept. 19, 1944. FIG. 2—Bunkhouse North View from CPR Main Line Tracks. FIG. 3—Mill Site from Barking Drum Location, Oct. 1944. FIG. 4—Mill Site from the Mill at the West End, Week of Oct. 14, 1944. FIG. 5—Townsite from Water. Sawmill in Foreground, Oct. 1944. FIG. 6—Bunkhouses, Oct. 1944.

SUTHERLAND

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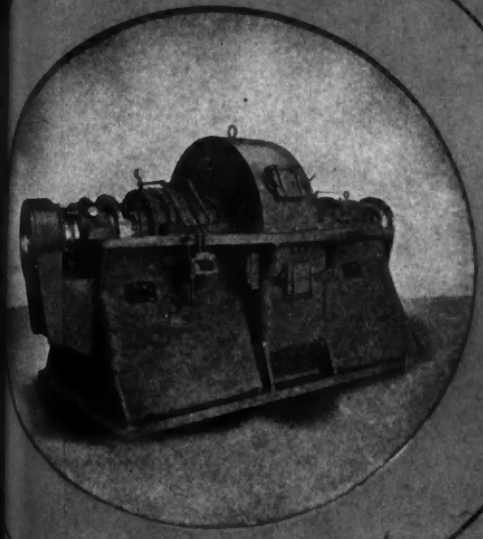

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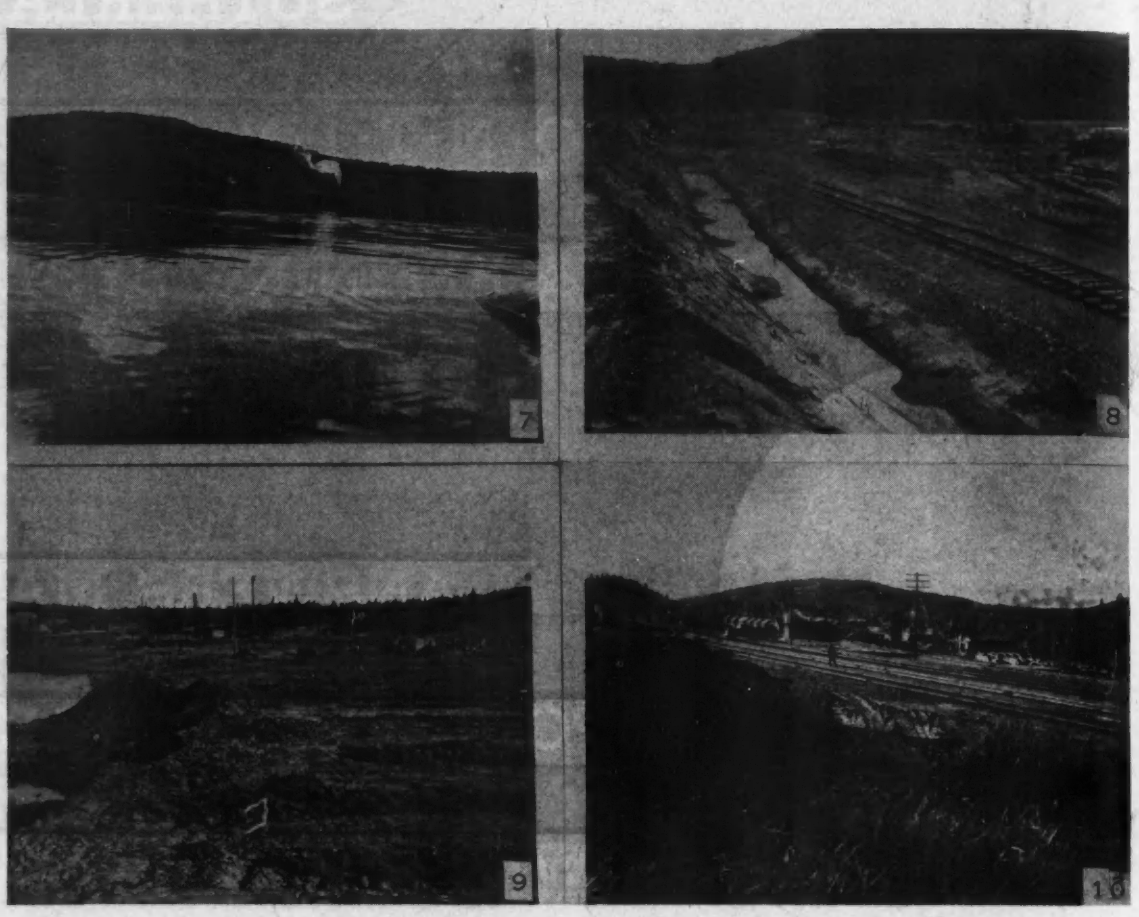


VIEWS AT SITE OF NEW PLANT OF MARATHON PAPER MILLS OF CANADA, MARATHON, ONT.

FIG. 7—Mill Site from Water, Oct. 1944. FIG. 8—Mill Site Excavation and Pile-Driving. FIG. 9—Mill Site from Fill to Dock Site, Oct. 1944. FIG. 10—Spur from the C.P.R. Main Line, Week of Oct. 14, 1944.

ent departments will be separated from each other although under one roof.

Located on Peninsular Harbour

The site of the mill is located on the north shore of Lake Superior at Peninsula Harbour. Sufficient ground has been allowed for expansion. The mill structure is adjacent to the water and is more or less connected to a wharf of about 1500 feet in length. The latter will allow the largest lake steamers to dock, discharging coal, etc., and taking on pulp, which will be shipped to lake ports for the supply of pulp to this company's parent mills and others.

The mill is located close to the C. P. R. trans-Canada main line, and therefore is provided with rapid rail transportation. A spur of about 6000 feet serves the mill and town.

Power Requirements

All power requirements for the mill and town site will be developed from processed steam. Processed water will be pumped direct from Lake Superior. Pulpwood will be supplied from the Pic Timber Limits, which have been acquired by the company and which involve sufficient timber to allow for perpetual operation of the mill. It is planned at this time to drive most of the pulpwood down the Pic River, at the mouth of which it will be boomed and towed to the mill.

At this time several housing units have been built for the town site and the construction of the hotel is going ahead rapidly, the latter being of 30 bedrooms.

The offices of the Marathon Paper Mills of Canada Limited are located at 320 Bay street, Toronto 1, Ont.

Power Show Opens November 27

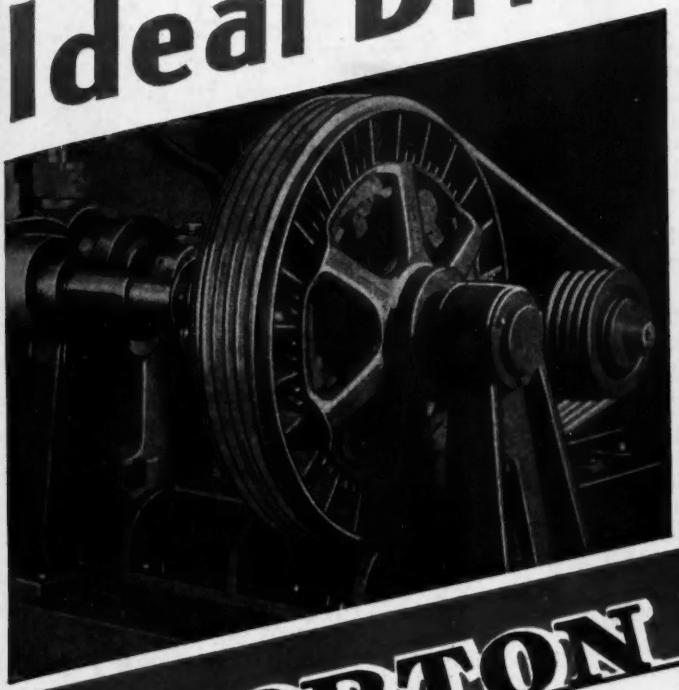
The sixteenth National Exposition of Power and Mechanical Engineering will be held at Madison Square Garden, New York, November 27 to December 2 inclusive.

The exposition this year was organized with the primary purpose of aiding in the war production effort and to assist in the furtherance of plans for conversion of industrial plants to civilian production after the war.

Representative exhibits will include a large display of equipment for the production of heat and power, its distribution and control. Auxiliary equipment will include proportionating equipment, automatic control systems, pumps, etc. Instruments of many kinds will be displayed, such as flow meters, recording gauges and testing equipment. Transmission apparatus will feature many items of equipment including belting, drives, bearings, clutches, etc. including pneumatic controls for machines.

Other exhibits will display materials handling equipment, such as hoists, trucks and cranes, and a comprehensive display of engineering materials, specialties, machines and tools will be exhibited.

The Ideal Drive for Paper Mills and Converters



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Improvements in Pulp and Paper Industry in Steam and Power Equipment

The Metropolitan Section of the American Society of Mechanical Engineers has started a series of meetings under the direction of its Process Industries Division. The purpose of these meetings is to discuss in particular problems involved in the various industries from the standpoint of the mechanical engineer.

The first session was held on October 31, 1944, and concerned itself with improvements in the paper industry. Papers were presented by C. J. Sibler, supervisor of power, West Virginia Pulp and Paper Company, and by J. E. Warner, chief engineer, Robert Gair Company.

With the permission of the A.S.M.E., some of the data presented is hereby summarized.

Improvements in the Pulp and Paper Industry

Reduction in Fuel Cost

In a mill that produces chemical pulp and paper, steam and power, of necessity, represent a large part (between 10 and 20%) of the cost of the final product. Large amounts of steam are required in the various stages of manufacture; in the digesters from 3000 to 4500 pounds per ton of pulp at pressures from 90 to 140 lbs. gage, in the paper mill from 5000 to 7500 lbs. per ton of paper at pressures varying from 2 to 75 lbs. gage, in the evaporators from 3500 to 6500 lbs, per ton of pulp at pressures varying from 15 to 50 lbs. gage. Additional low pressure steam is needed for heating the stock, for process water, bleaching, felt drying, heating of buildings, tanks, etc.

Power is consumed in large quantities for pumping water and stock; for preparation and refining of the paper stock; for driving paper machines, vacuum pumps, etc.

In order to operate economically, it is necessary to produce power as cheaply as possible by passing the process steam through extraction or back pressure turbines before it goes to the mill. The advantages of high steam pressures and temperatures in paper mills, permitting the production of by-product power, have been early recognized.

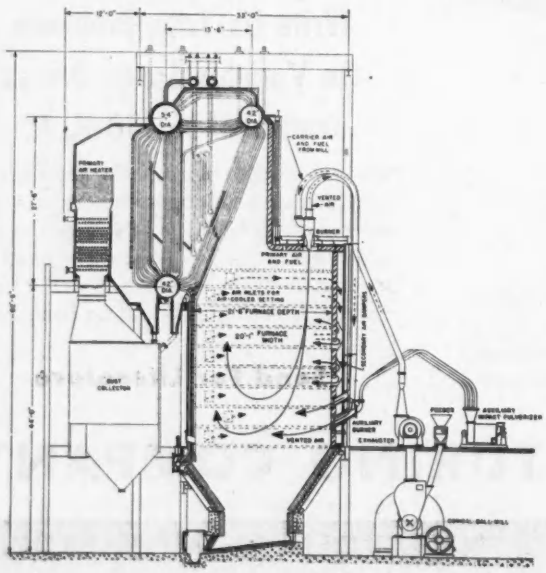

Fig. 1

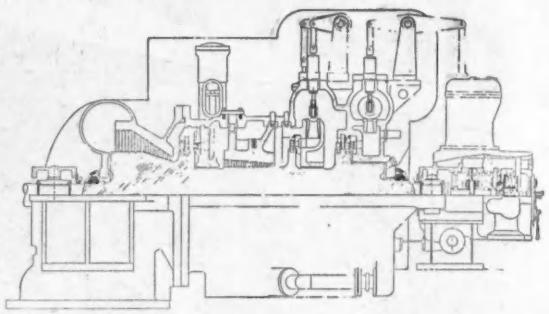

Fig. 2

How heat losses to the condenser can be reduced was demonstrated by a series of heat balance diagrams. These referred to a northern pulp and paper mill. The plant had been equipped with 15 low pressure boilers, partly pulverized coal and partly stoker fired, operating at 180 lbs. gage. Waste heat recovery boilers installed as part of the soda process are operating at 180 and 25 lbs. gage. The power house was equipped with three condensing turbines capable of bleeding at 25 lbs. gage pressure. A pressure reducing station supplied additional low pressure steam when needed.

Paper machines and vacuum pumps in this mill are mostly steam driven. An electrolytic plant supplies all the chlorine needed for the bleaching of the pulp. The mill has its own hydro electric plant. With normal water flow in the river, a large part of the electric load is supplied by water power. Due to fluctuations in the river flow, the demand on both the boiler house and the steam power plant varies greatly, and extreme load demands had to be met by condensing power. Steam flow to the condenser under unfavorable conditions reached a peak of 160,000 lbs. per hour.

Analysis of past performance of the mil, covering a period of several years, showed that the construction of a high pressure steam plant was justified. It was decided to install two steam generating units of 175,000 lbs. per hour capacity each, designed for 650 lbs. gage to be operated at 595 lbs. gage, 700° F. at the superheater outlet. As freight rates were favorable, the plant was designed to burn pulverized anthrafine. (Cross-section through steam generating unit shown in Fig. 1.)

A new high pressure, double bleeder condensing turbine was also purchased, and installed with one of the existing generators in the steam power plant, replacing one of the old units. This new turbine is shown in Fig. 2. This machine permits bleeding up to 98% of its throttle steam.

This new plant has been in successful operation over a period of three years. Curves in Fig. 3 show that the steam flow to the condenser has been greatly reduced, despite considerable increase in demand for power due to greater production.

PAPER

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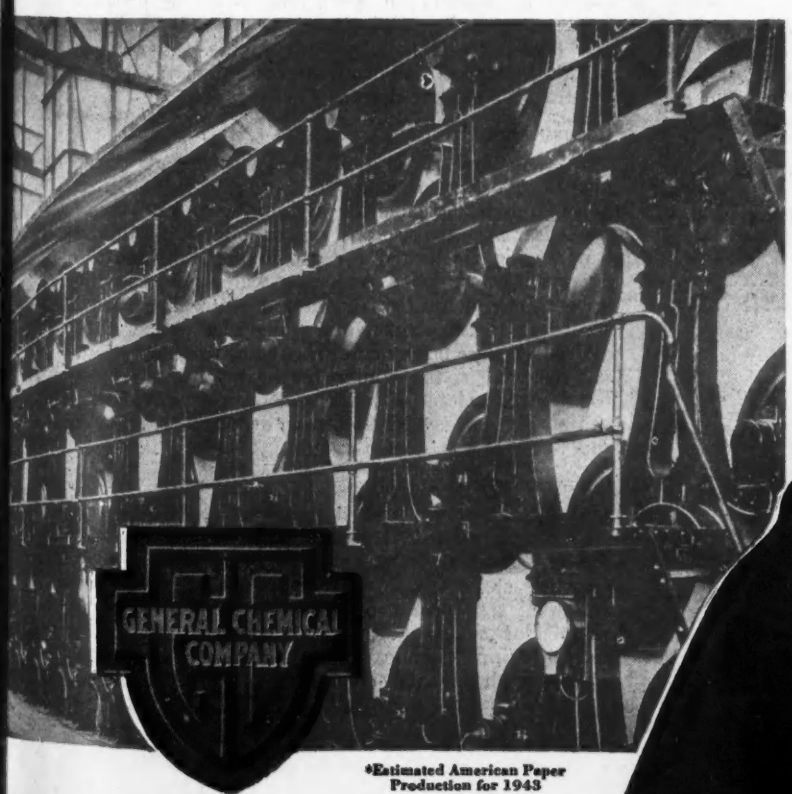
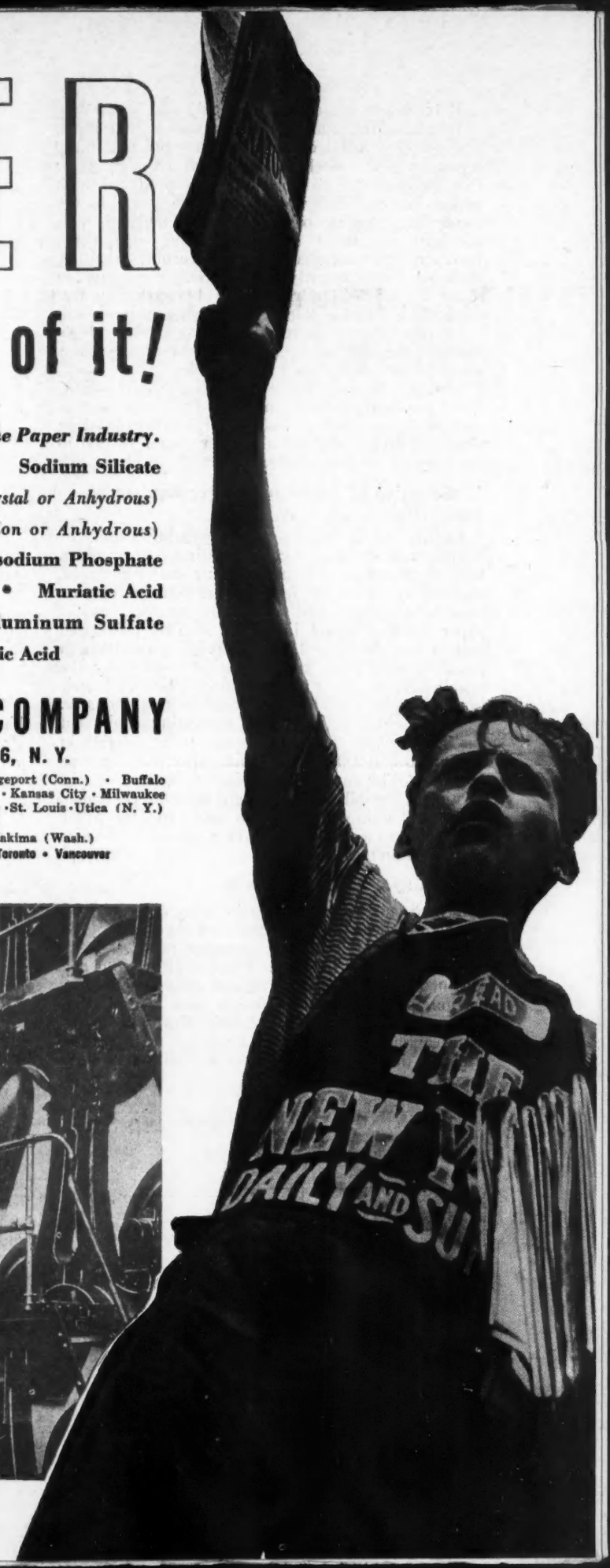




*Estimated American Paper Production for 1943

Referring to a modern kraft pulp and board mill, heat balance diagrams show that in such a plant, steam and power demand can be well balanced out if the steam pressure is chosen at about 600 lbs. gage; that is, most of the power can be produced with process steam, with very little steam going to the condenser. Because of fluctuation in demand, it is necessary to install some condensing equipment; however, it is important that the turbines shall be designed for extremely large bleeding capacity in order to take full advantage of by-product power production. Double bleeder condensing turbines will meet requirements better than those of the single bleeder type, particularly where two or three process steam pressures are used in the mill.

Considerable attention is being paid to the possibility of producing steam from waste fuels such as bark and black liquor. Fig. 4 shows high pressure steam produced from bark and also from liquor plotted in per cent of total steam demand.

Selection of Steam and Power Equipment

Power Boilers

For the power boilers, steam generating units of conventional design are commonly installed. Sudden large changes in steam demand occur quite frequently, particularly due to the fact that the digesters operate on a batch system, and for this reason the trend in paper mills generally has been towards pulverized coal or oil and natural gas firing. The variation in steam demand from boilers can be reduced by the installation of steam accumulators, which had their first and rather wide application in this industry. The trend in selecting steam generating equipment has been towards fewer and larger units, ranging in size up to 350,000 lbs. per hour capacity. The type of fuel to be burned depends, of course, on the location of the mil. Where freight rates are favorable, pulverized anthrafine has been used, and the paper industry deserves credit for having pioneered the first successful units of this type.

Black Liquor Recovery Units

In modern recovery plants, the spray type unit has, for all practical purposes, replaced the rotary unit. Spray type units are now operating in sizes up to 300 tons of pulp per day. High moisture and ash content in the black liquor present considerable combustion problems. Low fusion and vaporization temperatures of the salt cause difficulties in maintaining cleanliness of the unit. However, with proper attention these units can be operated with very little outage.

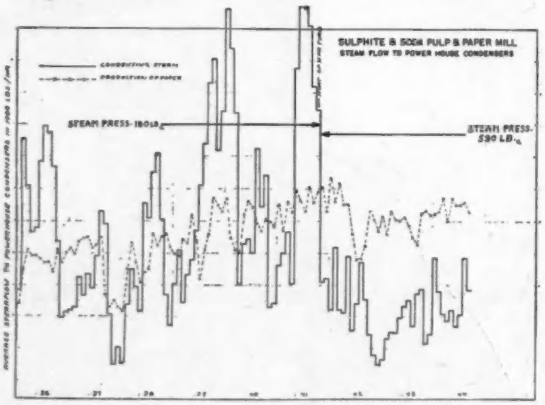


Fig. 3

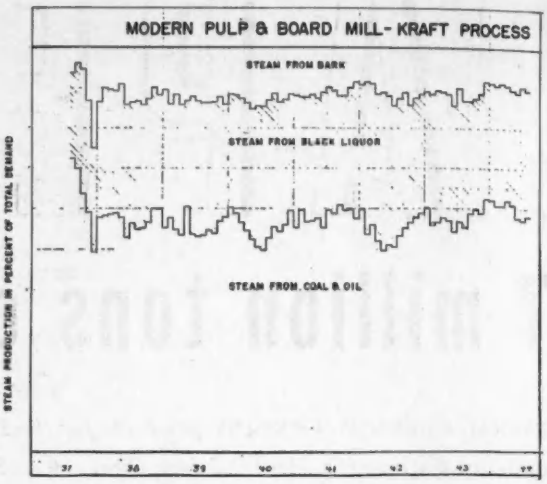

MODERN PULP & BOARD MILL - KRAFT PROCESS
STEAM FROM BARK
STEAM FROM BLACK LIQUOR
STEAM FROM COAL & OIL
STEAM PRODUCTION IN PERCENT OF TOTAL DEMAND

Fig. 4

Bark Burning Units

The burning of bark presents many problems due to the high moisture content. Low fusion sand, often found in the bark, also causes difficulties. The bark is burned alone or with other fuels on grates or stokers specially adapted to this fuel. Bark fines have also been burned in suspension, in pulverized coal fired furnaces.

Turbine Generators

The advantages of single and double bleeder turbines in a paper mill have already been mentioned. Present-day development of turbine governors permits very satisfactory operation under extreme bleeding conditions.

Paper Machine Drives

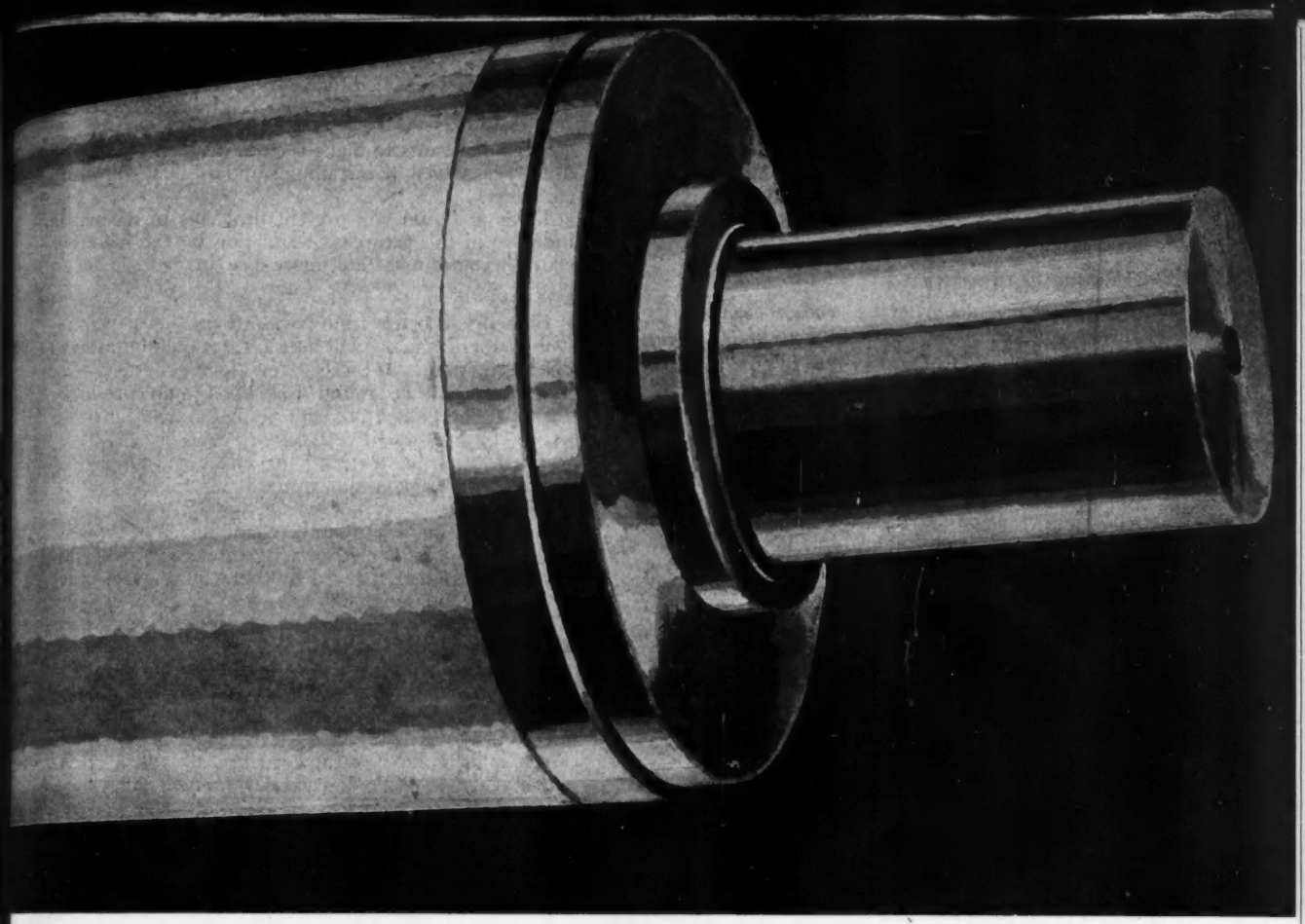
For paper machine drives, where operation over a wide speed range is desired, turbine drives are often used in sizes up to 2000 H.P. Very close speed control on any chosen speed level is of the greatest importance, and turbine governors specially designed for this purpose have proven highly satisfactory. Heat balance conditions often determine the choice of steam or electric drive.

Condensers

A pulp and paper mill always demands large quantities of warm water for process work. It is often found advisable to divide the power house condenser into two sections, one supplied with filtered water, which is heated for use in the mill, and the other section supplied with raw water going to the sewer. The quantities of filtered water are varied according to the season and the outlet temperature desired. Where large quantities of low pressure steam are required in the winter for heating, it has been found profitable to equip the condenser circulating pumps with two-speed motors, in order to save power and water in the winter months.

Feedwater

Only part of the condensate from steam used for process purposes is returned to the boiler house, between 30 and 70%. With the advent of high pressure steam, boiler feedwater conditioning has presented a problem of its own. For this large quantity of make-up, evaporation is not very practical, and therefore chemical treatment external to the boilers, with internal conditioning with phosphate,



We asked a paper salesman . . .

What makes a perfect sheet . . . Makes it easier to sell? Here's what a salesman from one of the large paper houses told us: "Good Calendering—proper finish, are most important. It makes all the difference in the appearance and printing quality of the sheet." Butterworth Gold Medal "Long Life" Calender Rolls produce perfect finishes because they are made to specifications and tested before delivery for the right hardness, smoothness and density. Butterworth Calender Rolls are furnished new or refilled for every calendering need. You get superior results at low cost.

For full information, write or call H. W. Butterworth & Sons Co., Philadelphia 25, Pa. Offices at Providence, R. I. and Charlotte, N. C. In Canada—W. J. Westaway Co., Hamilton, Ont.

Producing Gun Mounts for the United States Army

GOLD MEDAL *Long Life* ROLLS

Butterworth
Calender Rolls

is generally resorted to. In mills where the water available for make-up often contains large quantities of organic matter, it is sometimes found advisable to precede the chemical treatment with a coagulating process.

Electric Equipment

Older paper mills generally produce electric current at 440 volt, 25 cycle. Operating at higher voltages and 60 cycle offers many advantages, such as simpler distributing systems, reduction of line losses, the use of standard equipment and better selection of speed for power driven machinery. However, the cost of changeover in most cases would be prohibitive.

Mills constructed during more recent years have usually been designed for 60 cycle and 2300 volt, with motors from 50 hp. and up, direct-connected to the system. Even 2300 volt is not ideal in large mills due to the high short circuit currents in case of motor failures, which result in great strains on switching and generating equipment, and often require the installation of reactors for proper protection. The trend, therefore, will undoubtedly be toward 6600 volt or even higher.

As much of the electrical equipment is located in damp places and where water hoses are used, splash-proof and totally-enclosed motors are practically standard equipment, and cubicles and switching equipment are installed in separate rooms.

Controls and Instruments

The value of controls and extensive metering equipment in paper mills is more and more recognized. Often the flowmeters and recorders are installed in a central place, for instance, in the power house, with indicating gauges distributed through the pulp and paper mill. This permits boiler and power house operators to check up on changes in demand and provides opportunity to keep the equipment in good condition.

Operation and Maintenance

Operating and maintenance problems in a pulp and paper mill have become more and more complex, partly due to War conditions and partly to a change in operating schedules.

It had been accepted practice to operate mills 24 hours a day for five or six days a week. Under these conditions most maintenance work could be scheduled to be carried on during week-end shutdowns. For the more vulnerable parts, which required longer shutdown periods, such as boilers, turbines, rotaries and various machinery in the pulp and paper mill, spare equipment was generally provided.

When large kraft mills were installed in the South, the sizes of the individual pieces of equipment were greatly increased and the number decreased. The cost of spare equipment on such a basis naturally represents considerable capital investment for machinery which is normally not productive, and therefore its installation has been reduced to a minimum. This in turn imposes careful selection and proper design of equipment.

The matter is further complicated by the fact that these mills are normally operating continuously seven days a week, with only two or three shutdowns during the year, demanding practically 100% availability.

Two problems that face the industry in the post-war period are air contamination and river pollution. Removal of dust is always desirable from the community standpoint, and is important also to the paper-maker who wants to make a clean product. This can usually be solved by installing standard dust collecting equipment.

River pollution will present problems to the paper industry in the future as regulation by the different states becomes more and more exacting.

Conclusions

Glancing into the future we are sure of one thing —the paper industry will keep on expanding, perhaps not as rapidly as in the last few decades. New uses, moreover, will be found for wood pulp products. Many of the older mills will be modernized in order to stay on a competitive level.

There will be a trend to effect economies by reducing raw materials required. The high cost of wood will make processes giving a higher yield attractive. This may involve changing from sulphite and soda to kraft process; greater use of semi-chemical pulp as produced by the Asplund and other processes; and more extensive use of ground pulp. This in turn will introduce new bleach processes specially adapted for these pulps.

In the finishing of the products, the trend to machine coating will continue, thereby eliminating costly methods used in the past. Greater recovery of by-products will also receive special attention. There is little likelihood that fuel prices will decrease much after the War, and greater fuel economies can be accomplished in older mills.

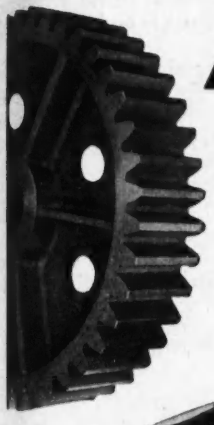
Paper Production for September

The following data cover all known mills and represent a continuation of the monthly statistics initiated in "Facts for Industry," series 24-2-1. For annual data and a description of the statistics, "Facts for Industry," series 24-1-2 should be consulted. All inquiries concerning these data should be addressed to the Bureau of Census, Washington 25, D. C.

Type of paper	1944 September	1944 August[1]	September 1943
All types	1,420,918	1,518,922	1,423,843[2]
Newsprint	61,408	60,571	64,008
Groundwood papers	47,787	51,248	48,826
Printing	18,842	18,678	15,605
Specialties	28,945	32,570	33,221
Book papers	117,122	125,186	131,263
General printing	86,917	89,122	96,022[2]
Converting papers	30,128	35,948	34,754
Other book papers	77	116	487
Fine papers	81,931	85,959	81,356
Writing papers	61,994	64,084	60,763[2]
Cover and text	3,187	4,501	3,782
Reproduction	4,008	4,031	4,027[2]
Bristols[4]	7,137	8,091	7,903[2]
Thin papers	5,168	5,138	4,424
Other fine papers	437	114	456
Wrapping papers	156,323	170,358	157,225
Bag papers	28,409	31,246	36,921
Glassine	6,903	6,834	6,861
Greaseproof	2,088	2,006	2,589
Vegetable parchment	2,932	2,846	2,913
Converting papers	61,487	68,340	52,580[2,5]
Wrapping papers	54,504	59,086	55,361[2,5]
Multi-wall sack papers	33,298	36,971	28,738
Special industrial papers	20,267	21,087[2]	16,752
Sanitary papers	64,699	67,556	66,274
Tissue papers	12,745	13,904	13,816
Absorbent papers	7,673	7,908	7,851
Building paper	73,243	76,704	75,749
Paperboard	744,422	801,470	731,982
Container board	354,602	384,741	352,291
Folding boxboard	174,230	189,955	173,521
Set-up boxboard	62,630	65,619	66,379
Cardboard	5,373	6,781	4,951
Building board	89,932	95,170	86,264
Miscellaneous other board	57,655	59,204	48,576
Tube stock	37,730	38,038	27,652

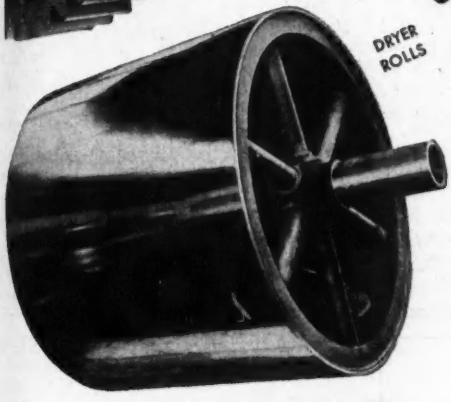
[1] Revised.
[2] Includes a small quantity of paper not classified by type.
[3] Data revised to conform with certain changes in paper and paperboard classifications which became effective beginning January 1944. For figures covering other months of 1943, see "Facts for Industry," Series 24-2-5, Table 2.
[4] Includes Government Postal Card Stock.
[5] Includes a small quantity of Special Industrial Papers having a basis weight of less than 100 pounds. Such paper was classified as Wrapping Paper prior to January 1944.

Save Weight... Add Strength...



GEARS

with Lukenweld Welded Steel Construction!

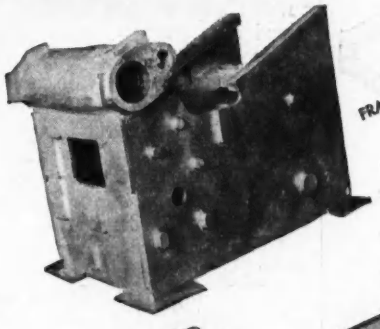


DRYER ROLLS

Throughout the industry, the prewar shift to welded steel equipment in many of the leading paper mills has been responsible for a more efficient, trouble-free operation of machinery in these mills today.

Rolled steel plate, sound and clean, with known characteristics, can be flame-cut to size and shape, formed as necessary and welded into a structure of predictable strength and rigidity with less weight than other types of construction.

Lukenweld specializes in the design and fabrication of such structures as dryer rolls and frames, steel gears, cylinder rolls, coating drums, frames and parts. The cooperation of the Lukenweld Engineering Department is freely offered. Phone or write the nearest office for further details.



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BALTIMORE 2
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Plaza 2834

BOSTON 9
131 State Street
Hubbard 4031

CLEVELAND 14
W. R. McDonough & Co.
Cleveland Railway Bldg.
Prospect 1940

DETROIT 2
C. T. Hansen & Co.,
427 New Center Bldg.
Trinity 2-3443

SYRACUSE 2
204 Heffernan Bldg.
Syracuse 3-3965

NEW YORK 7
50 Church Street
Rector 2-1324

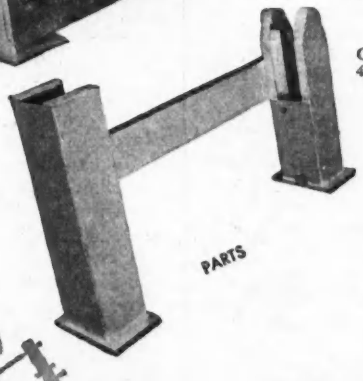
PHILADELPHIA 3
Broad Street Station Bldg.
Rittenhouse 5082

SAN FRANCISCO 4
C. T. Hansen & Co.
423-424 Russ Bldg.
235 Montgomery St.
Garfield 9206

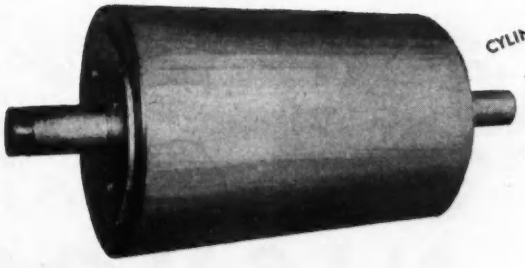
WASHINGTON 5
1143 Munsey Bldg.
1329 E. St., N.W.
National 9858

LOS ANGELES 14
C. T. Hansen & Co.
628 Security Title Ins. Bldg.
530 West Sixth Street
Van Dyke 1151

SEATTLE 1
C. T. Hansen & Co.
6117 Arcade Bldg.
1319 Second Ave.
Main 4377



PARTS



CYLINDERS

LUKENWELD, INC.

250 Lukens Building — ***Division of Lukens Steel Company*** — **Coatesville, Pa.**

File Suits Against Waste Paper Dealers

Fourteen injunction suits against wastepaper dealers, charged with violating OPA price regulations were filed in Manhattan and Brooklyn Federal courts Tuesday of last week, Daniel P. Woolley, Regional OPA Administrator, announced. License warning notices were sent to 21 other dealers, informing them that continued violations of OPA regulations would result in OPA Court actions to suspend their right to do business for a year.

Spurred by complaints of violations, a survey of the wastepaper and corrugated box industry was launched under the supervision of Paul L. Ross, regional OPA enforcement executive. Six permanent injunctions and treble damage payments amounting to $81,939 have already been obtained, Mr. Woolley said.

Seven of the complaints filed in Brooklyn Federal Court named five Brooklyn and two Queens dealers as follows: Dominic Zerbonia, 108-37 44th avenue, Corona, Queens; M. Rosenberg & Son, 254 Osborne street, Brooklyn; Republic Paper Stock Company, Inc., 5 La Grange street, Brooklyn; John Rago, 112 Kingsland avenue, Brooklyn; Maglio Brothers, 137 Ellery street, Brooklyn; Barone Brothers Salvage Company, 750 Chauncey street, Brooklyn and the American Paper Mill Supply Company, 34-38 65th street, Woodside, Queens.

Seven more actions also seeking orders restraining further buying and selling of wastepaper at over ceiling prices were filed in Manhattan Federal Court against these seven Manhattan firms: Acme Waste Material Company, 407 E. 47 street, C. & M. Antoniello, 315 W. Houston street; Ernest DeMatteo, 42 141 street; M. Marotta & Sons, 503 Washington street; N. D. Rago Company, 640 E. 16 street; Valentino and Bolino, 302 E. 98 street; and Waste Paper Packers, Inc., 501 Washington street.

"Waste paper is unquestionably one of the most critical and vital of war commodities," Mr. Woolley said. "It is used in the manufacture of food ration kits, bullet and shell containers, medical supply cartons and for a hundred other types of packing supplies for the armed forces, in addition to our needs at home."

The 14 injunction suits represent only a portion of the action taken by the OPA as a result of its investigation of wastepaper and corrugated box dealers.

Mr. Woolley also cited the treble damage claims in the sum of $15,900 obtained recently in OPA suits in this area. They were against Thos. Galanto & Sons, Inc., the ABC Fibre Corporation, and Galanto Trucking Company, 250 E. 149 street, which jointly paid $7,500; John D. Greco, Inc., 176 South street, who paid $5,500; and Staiman Brothers, Williamsport, Pa., who paid $2,900.

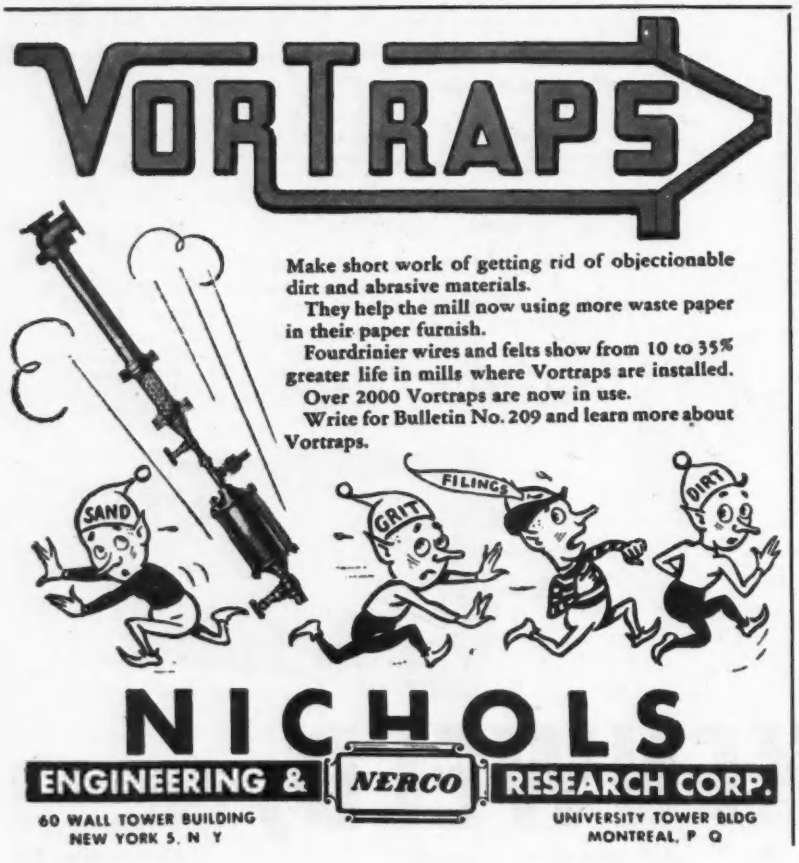
In addition, treble damage payments of $31,539 were made by A. Fleisig Sons Folding and Setup Paper Box Corporation, 57 E. 11 street, and $5,400 by the Hudson Corrugated Corton Company, 44 W. 24 street.

Permanent injunctions were also obtained against James A. Brancato & Co., 241 North street, Brooklyn; the Century Waste Material Company, Inc., 524 E. 20 street, and Sharran's of 11 W. 17 street.

"We intend to put an end to this salvage sabotage," Mr. Woolley declared, in striking out against repeated offenders. "In addition to injunctions, criminal prosecutions and treble damage actions, the OPA will apply another sanction authorized by Congress. This permits the Price Administrator to suspend a violator's license to do business."

Mr. Woolley last week signed formal notices which were sent to 21 firms warning them that continued violations will result in the suspension of their license for a period up to 12 months.

The firms receiving such letters are: Acme Waste Material Company, 407 E. 47 street, American Paper Mill Supply Company, 34-38 65 street, Woodside, L. I.; C. & M. Antoniello, 315 W. Houston street, Barone Brothers Salvage Company, 750 Chauncey street, Brooklyn; Robert Blank, 140 Nassau street, James A. Brancato & Co., 241 North 9th street, Brooklyn; D. Cantasano, 63 Corsby street; Century Waste Material Company, Inc., 524 E. 20 street; Ernest DeMatteo, 42 W 141 street; Derrico Company, Inc., 338 E. 110 street; Federal Waste Paper Corporation, 611 W. 48 street; Maglio Brothers, 137 Ellery street, Brooklyn; M. Marotta & Sons, 503 Washington street, N. D. Bag Company, 640 E. 18 street; Daniel Orzo & Sons, Inc., 689 Morris avenue, Bronx; Republic Paper Stock Company, Inc.,


VORTRAPS
Make short work of getting rid of objectionable dirt and abrasive materials.
They help the mill now using more waste paper in their paper furnish.
Fourdrinier wires and felts show from 10 to 35% greater life in mills where Vortraps are installed.
Over 2000 Vortraps are now in use.
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5 La Grange street, Brooklyn; M. Rosenberg & Son, 254 Osborne street, Brooklyn; Valentino & Bolina, 302 E. 98 street; Waste Paper Packers, Inc., 501 Washington street; and Dominic Zerbonia, 108-37 44 avenue, Corona, Queens.

To Test New Zealand Wood

The New York State College of Forestry at Syracuse University has received 20 cords of pulpwood from New Zealand for experimental purposes. The wood, which was shipped half-way around the world, is popularly known as Monterey pine. It was sent to the forestry college by the Whakatane Paper Mills, Auckland, because no institution in New Zealand or in Australia is equipped to carry on the investigations desired by the Whakatane Company.

The wood was sent to the College to determine the possibilities of making satisfactory chemical pulp for book and writing paper, rayon and other purposes. The wood is in four-foot lengths and was cut from trees about 11 years old. In New Zealand soil and climate the Monterey pine has a remarkable growth and is considered a superior tree. It grows on the average of four feet in height annually and often reaches a diameter of eighteen inches when twelve years old. An acre of this mature timber will yield from 100 to 150 thousand board feet, and exceeds that in many places.

It is believed that the timber industry will take a leading place in the economy of New Zealand in the future and that the Monterey pine will become an important factor in postwar prosperity.

Professor Clarence E. Libby, head of the Department of Pulp and Paper at the forestry college, reports that excellent results are being obtained in pulping this wood and that paper machine runs of several types of paper will be made from this pulp in the near future.

Use Paper Bags for Apples

In order to meet drastic shortage of apple boxes, apple growers are being supplied with heavy paper bags at Summerland, B. C.

First shipment of C grade have been sent as an experiment. Bags hold the same quantity of apples as are placed in box in orchard. The box is thus released for packing higher grades, fancy and extra fancy.

Apples in bags in railway cars are placed on top of three tiers of regular boxes, usually shipped six tiers high.

Oliver and other points along the Okanagan Valley are experimenting at the same time, and it is hoped the system used will work. Oliver was also experimenting with packing of bags right in the orchard.

A WELL ENGINEERED INSTALLATION AT S. D. WARREN COMPANY, MANUFACTURERS OF QUALITY PRINTING PAPERS, CUMBERLAND MILLS, MAINE . . . ASSISTED BY A WARREN PUMP.

Paper Mills place a premium on reliability and performance. At Cumberland Mills the plant hydraulic elevator pump has a dual drive turbine and synchronous motor.

The turbine driver is used to regulate heat balance and to supply process steam. Pump requirements are thus served with by-product power. The synchronous motor generates when the steam demand exceeds the pump load and operates as a motor when the demand is less. Pump power costs are reduced to a minimum.

In addition to building pumps for every paper mill service, Warren cooperates with plant engineers in working out money-saving installations.

WARREN PUMPS

ARMY E NAVY

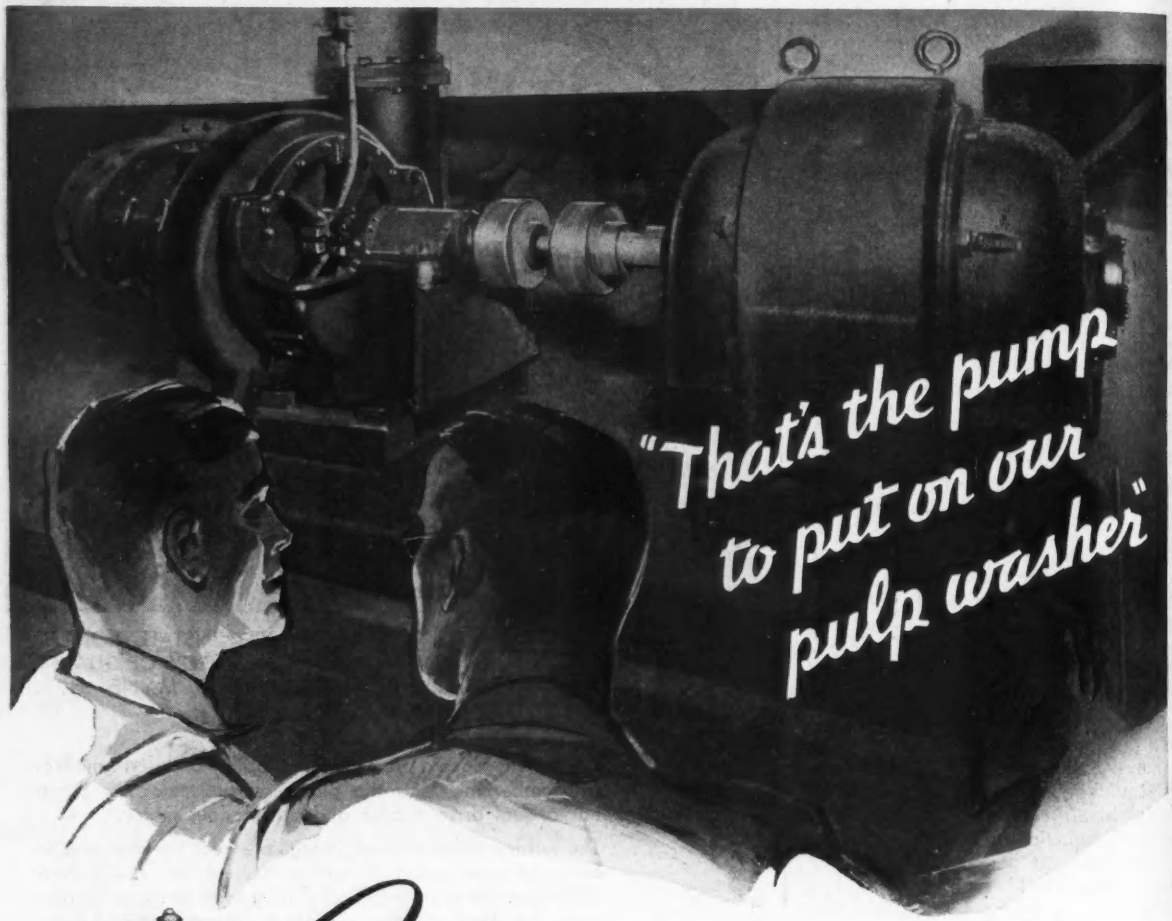
WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS

Join Penn Salt Staff

The Pennsylvania Salt Manufacturing Company, 1000 Widener Bldg., Philadelphia 7, Pa., announces the following additions to its Research and Development staff:

Miss Isabella A. Romans, formerly with Chloramine Corporation; Dr. George McCoy, formerly instructor of Organic Chemistry at the University of Pennsylvania; Mr. Ward W. Whitebread of General Chemical Company; Mr. Harry Green of Lion Oil Refining Company; Mr. Savin Zavarella of Pratt Whitney Aircraft Corporation; Mr. Harold B. Staley of Cochrane Corporation; and Dr. Frank W. Panepinto of the Warner Company.

New staff members also include Miss Mary F. Hansler and Miss Helen Cunningham of the College of Chestnut Hill and Miss Mildred E. Raesler of Pennsylvania State College.



Vertical
Stock Pump

Yes this Ingersoll-Rand stock pump will handle the job. It is built with extra-heavy shaft and bearings, and an efficient 2-vane impeller. It will stand up under severe day-in and day-out service.

When the time comes that a part must be replaced, this pump can be taken down and reassembled in "jig time", and without disturbing any of your piping.

Ask our engineer for complete details on this stock pump or any of the other pumps in the complete I-R line for pulp and paper mills. Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York 4, N. Y.

Ingersoll-Rand

10-405

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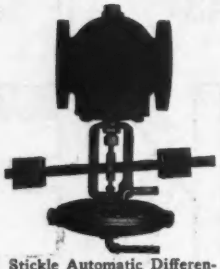
High quality, free-flowing material available for shipment by rail or water from strategic points located in the East, Middle West and on the Gulf Coast.

STICKLE DRAINAGE AND CONTROL

CORRECT DRAINAGE AT ALL PRESSURES*

● Every paper man knows that correct drainage is essential to proper drying of paper. Sluggish drainage affects quality and is reflected particularly in a reduced volume of production.

Correct drainage for a paper machine must take into consideration both the amount of steam required in the condensing section and the drop in pressure between sections. Obviously, the correct drainage method cannot be predicated upon one pressure but must work with varying pressure in the driers and with the differential between sections.



Stickle Automatic Differential Valve—the heart of the Stickle System for Paper mills.

With the Stickle System the required drop in pressure necessary for correct drainage at all drying pressures is automatically maintained. The correct amount of steam required in the condensing section is automatically admitted and the differential between sections required for circulation is maintained. The deficiency required for the condensing driers is made up and the correct differential for efficient drier drainage is maintained regardless of pressure demand upon the driers.

This is one of many advantages that has made Stickle Drainage and Control System the choice of the paper industry. Among other advantages afforded by the complete Stickle System are: Stabilized Steam Flow; Close Control of Moisture Content; Uniform Drying at a pre-determined moisture content; Visible Operation of each syphon; Improved Quality of product; Economy of Steam—greater tonnage in ratio to steam used; Increased Boiler Capacity; Reduced Fuel Costs; and Higher Production Capacity—increased speed of machines.

Stickle

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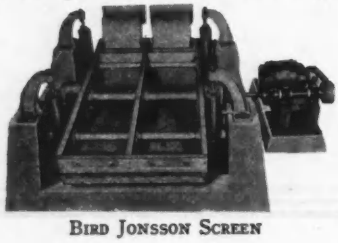
FOR 40 YEARS REDUCING STEAM COSTS IN PAPER MILLS

Bird Co. Expands Line

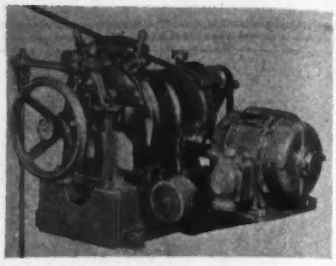
There is abundant evidence that Bird Machine Company has been actively engaged in development work for the pulp and paper industry during the period in which its manufacturing facilities have been largely devoted to war production of critical importance.



Bird Jonsson Screen

Taking their places beside the Bird Paper Screen, the Bird Save-All, the Bird Centrifiner, the Bird Self-Cleaning Shower Pipe, the Vickery Felt Conditioner and Vickery Doctors are the new Jonsson Screen for pulp, the Bird Consistency Regulator and the Bird Dirtec for making cleaner paper.

The Jonsson Screen has already attracted widespread interest as a result of its remarkable performance on every variety of pulp screening application. It is proving an ideal knotter on all kinds of pulp—ground wood, soda, sulphite and sulphate.



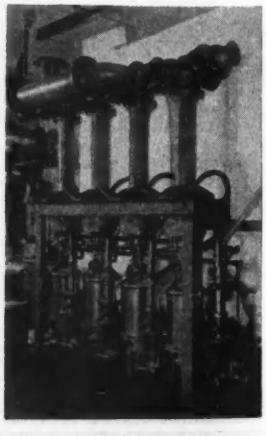
Bird Consistency Regulator

It handles up to 100 tons per day, the knots are rarely broken while in the Screen and are exceedingly free of good fibers when they leave the Screen. It requires very little power and it handles stock of relatively high consistency with ease.

Used as a knotter ahead of brown stock washing systems the Jonsson Screen greatly improves washing efficiency, without foaming, and handles the stock at far higher consistency than is customary.

The Jonsson Screen is also proving unusually effective as a bull screen, on ground wood, as a coarse screen on ground wood, soda, sulphite, sulphate and building board stocks, as a fine screen (with slotted screen plates) and as a tailings screen. It produces pulp of uniformly high quality and cleanness at low cost.

The Bird Consistency Regulator is already in successful use in paper mills ahead of the Jordans, machine chest or screens and in pulp mills ahead of the knotters and deckers. It holds consistency to within plus or minus 0.1% or closer. It regulates stock of any consistency from less than 1% to 12% and is quickly adjusted from one consistency to another. It acts without appreciable time lag. Once set it requires no attention. As a dependable and economical means of maintaining accu-



Bird Dirtec

rate stock consistency day in and day out the Bird Regulator is destined for widespread application.

The Bird Dirtec represents the last word in equipment for removal of both light and heavy dirt from paper stock by means of the pressure drop principle. It operates continuously and automatically. It is easy and economical to install. No moving parts are employed. The Dirtec is relatively new only to American mills. Hundreds have been employed in England with outstanding success.

These interesting items of Bird Machinery are in line with the Bird Machine Company policy of concentration on equipment for the production of better paper and more of it per day at lower cost per ton. Complete information on the Jonsson Screen, the Bird Consistency Regulator and the Bird Dirtec may be obtained by writing Bird Machine Company, South Walpole, Mass.

New Careers

In a letter addressed to high school students, Folke Becker, President of Trees for Tomorrow Inc., said, "These scholarships are inaugurated to heighten interest in conservation and to help high school graduates who show an aptitude and earnest desire to make forestry their profession." He pointed out, "Right here in Northern Wisconsin we have an immense reservoir and laboratory in the vast acreage of the cutover region. This region can, with proper understanding of its particular needs and through the development of its forest resources, become a treasure house for all of Wisconsin". Mr. Becker stressed the giant strides that have been made in the technical development of wood and the new career opportunities opened up by science in the field of forestry.

Supplies Unusually Low

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 20, 1944—If such a thing is possible, it seemed last week that paper supplies in this area were even lower than they have been. Demand, however, is not lessening and there is no hope of filling some orders. Reports from manufacturers not only here, but in other parts of the state, show a backlog of orders far beyond the ability of the factories to supply. The labor situation does not appear to be improving. This seems now to be the chief worry of the factories. Stocks of raw materials are only fair, but production could be upped somewhat if labor were available.

Container factories here are producing to the utmost of their ability but orders are far beyond deliveries and the backlog of orders is the heaviest in history. Demand for special boxes for the holiday trade has been heavy and many have been curtailed or not filled at all. The military continues to seize most of the output here, either directly for military services or for factories making war products.

Kraft demand was heavy last week with supplies very short. Wrapping paper and bag demand was larger than the week before in spite of efforts on the part of merchants and others to induct the public to conserve these items. Tissues of all kinds were in demand last week with a shortage in cleaning grades.

Building paper demand was good with the continuance of good building weather. A lessening of priority regulations particularly with regard to small houses has caused the fall season to be better this year than last. Roofing demand follows closely the general trend of building paper. A large amount of re-roofing and remodeling is being done at the present time.

Publishers are taking their full quotas of print paper, but the amount of fine paper to be used this year for advertising and catalogue work will be cut drastically.

No change was seen in the waste paper and rag situation with demand good and prices at ceiling levels.

...YOU TRY TO TEAR IT

(We'll gladly send you a sample)

Is tear resistance your current problem? . . . or grease proofing? . . . or better folding or inking qualities? . . . or sizing?

The vocation and avocation of

ARCC research department paper specialists is successful solution of countless paper making, processing and finishing problems. Let these men work with you.

RESIN Emulsions and Dispersions
Impregnants — Adhesives — Coatings

Write to

American Resinous Chemicals Corp.

HOME OFFICES AND LABORATORIES:
NEWARK, N. J. MONROVIA, CALIF. CHICAGO, ILL.

Boston Paper Men Meet

BOSTON, Mass., November 20, 1944—From his collection of more than 7500 feet of films, Colonel Edwin H. Cooper, one of the senior members of the Christian Science Monitor staff, showed moving pictures, a large proportion in technicolor, "From England to China with our G. I. Joes," giving at the same time an interesting talk, at the fall meeting of the Boston Paper Trade Association in the Roof Ball Room of the Parker House, November 15. Colonel Cooper, who has recently returned from flying some 32,000 miles over the many war zones, held the close attention of the approximately 150 members and guests. He paid a glowing tribute to the American soldier, whom he mentioned was working at times at 180 degrees in the sun. He said that Stalin today is protecting the borders of Russia, but he is not going to forget Japan.

Lieutenant Colonel John H. Brewer, formerly general manager of Storrs & Bement Company, who came from New Haven to attend the meeting and say "Hello" to the paper trade, said he had kept in close touch with the trade and intimated that a sense of humor was just as necessary in the army as in the paper business. He closed his remarks by telling a personal humorous story. Colonel Brewer received a warm welcome.

Preceding the dinner, the national anthem was sung, and throughout the courses there was community singing, with Lindsey Cummings leading.

In the business meeting, with President Matthew O. Byrne in the chair, eight applications for membership were accepted: Holly R. Cantine, Martin Cantine Company, Saugerties, N. Y.; John A. Gale, Mississquoi Corporation, Sheldon Springs, Vt.; Howard R. Miller, the Howard Paper Company, Urbana, Ohio; Robert O'Neil, Pejepscot Paper Company, Brunswick, Me.; Hobart J. Shanley, Crocker McElwain Company, Holyoke, Mass.; Howard Wallingford, Tileston & Hollingsworth Company, Boston, Mass.; Floyd R. Graham, Graham Manufacturing Company, Holyoke, Mass., and Samuel D. De Forest, Stimpson & Co., Inc., Boston.

The following nominating committee, to report at the Spring Meeting, was appointed: Colonel Charles S. Proctor, chairman; John W. Vivian, F. Bendel Tracy, Charles A. Esty, and M. J. Madden.

Buys Control of MacSimBar Stock

KALAMAZOO, Mich., November 13, 1944—Without change in officers or management, the MacSimBar Paper Company of Otsego last week passed into control of the United Biscuit Company, Chicago, it was officially announced Saturday by Charles E. Nelson, president and general manager.

Purchase of 151,000 shares of common stock was made by the company, it was stated, as a means of insuring its supply of paper board for its mills manufacturing biscuit cartons.

The new MacSimBar board will be composed of 10 directors, it was announced, three new members to be added from the United Biscuit Company.

There were 300,000 shares of common stock outstanding at the time the new purchasers announced their intention to buy controlling interest.

President Nelson, who will remain in charge of the Otsego mill, as general manager, resides at 2346 Plymouth Lane, Kalamazoo.

Center-spread table in this 8-page bulletin shows chemical analysis, physical properties and applications of 33 more popular alloys available in Shenango-Penn castings.

IF you use bearings, bushings, sleeves, liners, or other tubular parts, and want them stronger, denser, more uniform and more durable, write for this bulletin.

Shenango-Penn centrifugal castings have such a uniform, dense structure that their physical qualities approach those of forgings. Widely used in planes, war ships, cargo ships, war equipment of many kinds, they will have many applications in peace-time machinery and products. Get your copy of this data book, for specifications, physical properties, sizes, applications and other important information. Ask for Bulletin 143.

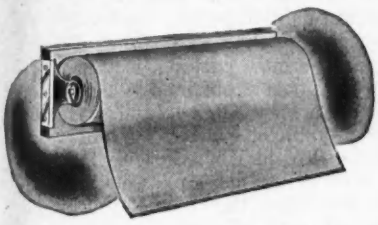
SHENANGO-PENN MOLD COMPANY
744 West 3rd Street, Dover, Ohio • Executive Offices: Pittsburgh, Pa.

ARMY NAVY

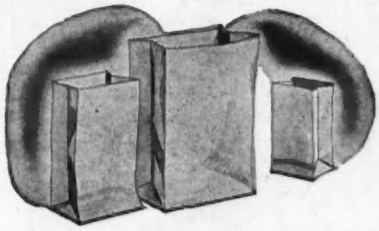
SHENANGO-PENN

ALL BRONZES • MONEL METAL • ALLOY IRONS

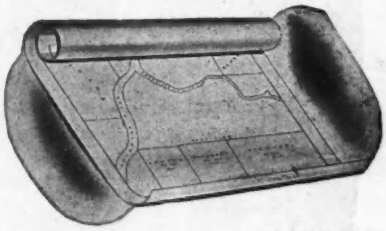
Making papers like these?



TOWELINGS



FOOD WRAPPINGS



MAP PAPERS

Boost their wet strength at low cost with

UFORMITE 467*

a new resin for addition at the beater

HERE is a new, economical means for increasing the wet strength of toweling, bag papers, map and blueprint papers, glassine and other grades. Even in low concentrations UFORMITE 467 substantially increases the wet and dry physical characteristics of all paper stocks . . . including Kraft, sulfite and rag.

For beater application

This unique urea formaldehyde resin is specifically designed for application at the wet end of the paper machine—beater, head box, fan pump, or other convenient point. This feature permits full use of the drier section for curing the resin. Time required for passage through the drier is usually sufficient for curing.

Infinitely soluble in water, UFORMITE 467 can be added to the finish in any desired concentration.

To these special advantages of UFORMITE 467 are added such other features as low cost and freedom from color, odor, or taste in the finished sheet.

Greater stability

UFORMITE 467 is supplied as a 45% solution, which contributes to greater storage stability and ease of handling. In other respects, it is identical with UFORMITE 466,* which it supersedes. Allowing for its lower solids content, UFORMITE 467 may be directly substituted for UFORMITE 466 wherever the earlier resin was used.

NEWER DEVELOPMENTS IN SYNTHETIC RESINS

- **PAPER RESINS**
  Liquid and powdered types
  ...for weatherproof paperboard
  ...for increasing wet strength
  ...for laminating work
- **RESIN ADHESIVES**
- **COATING RESINS**
- **ION EXCHANGE RESINS**
- **PLASTICIZING AND MODIFYING RESINS**

If you want assistance in any of these synthetic resin applications, our technical staff will be glad to study your problem without obligation.

3 awards to The Resinous Products & Chemical Company and its associated firms, Rohm & Haas Company and Charles Lennig & Company.

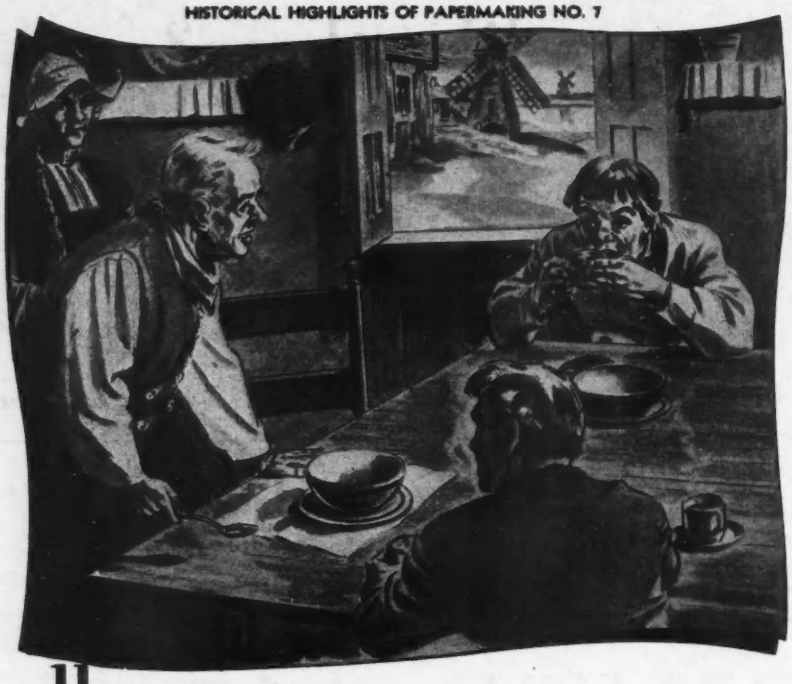
UFORMITE *is a trade-mark, Reg. U. S. Pat. Off.*

Represented by Cia Rohm y Haas, S.R.L., Carlos Pellegrini 331, Buenos Aires, Argentina, and agents in principal South American cities.

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

HISTORICAL HIGHLIGHTS OF PAPERMAKING NO. 7



"You eat like a Papermaker"

To this day in the old papermaking districts of Holland, children who gulp their food hurriedly are chided by their parents with the expression "You eat like a Papermaker."

It came about in this way. Many years ago it was the custom for the couchers and vatmen to live and dine with the master of the mill where they were employed. It was considered proper for the papermakers to cease eating when the master, by laying down his spoon, gave evidence that he was finished and ready to resume work.

The early Dutch masters were anything but liberal, and to prevent workmen from eating too much, dishes were served steaming hot. Before the dishes had time to cool, the master would lay down his spoon, and the poor papermakers had to resume their arduous tasks before satisfying their hunger. Hence, when they did eat, they wasted no time on pleasantries, but with one eye on the master, they raced through a bowl of stew or a plate of kraut. Fifteen minutes was considered a long lunch period, and workmen averaged seventy hours a week in their back-breaking tasks.

But they were a happy lot who took pride in their skill, these old papermakers.

☆ ☆ ☆ ☆

Here at Cheney Bigelow we're proud of our part in furnishing essentials to the paper mills of America and weapons to our armed forces. Old timers in the craft know of our 102 years of service that furnishes the experience to make Fourdrinier wires, and other mill items of top quality and performance.

CHENEY BIGELOW

Fourdrinier Wires • • Dandys • • Cylinders • • Wire Cloth

CHENEY BIGELOW WIRE WORKS · 417 LIBERTY STREET · SPRINGFIELD, MASS.

New Plastic Packing

The demand for packings of the plastic type is steadily growing in certain industries. To meet this demand, Greene, Tweed & Co. has introduced a new superior development of this type in Palmetto Plastic Packing.

In this new packing, lasting lubricating effect is obtained by combining graphite with flakes of soft, anti-friction metal. These two lubricating agents are distributed evenly throughout long line fibers of best grade asbestos, and the whole thoroughly mixed with a special heat-resistant binder. The mixture is then formed into continuous lengths by an extruding operation which gives the packing a square outline. This shape may be altered, if necessary, to suit special requirements, as compression, rolling or pounding do not impair the usefulness of Palmetto Plastic Packing.

In service, Palmetto Plastic Packing is said to provide exceptionally advantageous properties. The asbestos makes a strong, heat-resisting bond, the binder gives resiliency and stability under pressure, and the graphite and metallic flakes minimize frictional wear. There is no liquid lubricant to be squeezed or driven out under heat or pressure, and the packing does not dry out or harden in use. In service it forms a plastic metallic bushing around the rod or shaft.

Palmetto Plastic Packing is recommended for air, ammonia, gases, water, mild chemicals and general services at temperatures not exceeding 550° F. While not intended to replace braided or plaited packings, this plastic packing, installed in pumps, valves and on rotating shafts of steam and chemical equipment, has been found to give highly satisfactory service.

At present the packing is available for immediate shipment in coil form in one general - purpose grade — Palmetto Plastic Packing No. 1. Other grades and styles for use with chemicals, solvents, etc. are in preparation.

Palmetto Plastic Packing No. 1 is packed in boxes containing approximately 7 lbs., each coil given a protective wrapping of light-thread, wide-mesh braid.

The manufacturers back this new packing with the assurance of highest quality materials, modern machinery and methods and 81 years of manufacturing experience. Early deliveries may be secured. Further information can be obtained by addressing the manufacturers, Greene, Tweed & Co., 4377 Bronx Boulevard, New York 66, N. Y.

Eliminate Hidden Losses

The next reduction in American production costs can be most readily effected by cutting materials handling costs, eliminating the "hidden losses" of time and money-wasting re-handling, with the use of the most modern equipment and methods.

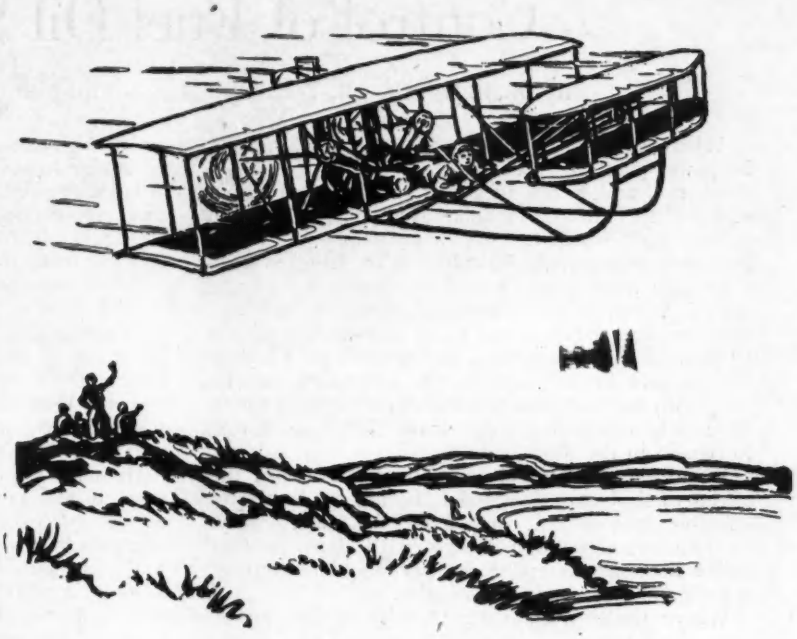
It has been only comparatively recently that industrial management has become fully aware of the axiom that "handling adds nothing to value —only the cost." As the result of this awareness, precision industrial dial scales have assumed a major responsibility in modern materials handling practices to cut handling costs . . . and production costs.

Industrial dial scales, of the precision springless type, have made an enviable record in eliminating the "hidden losses" found in inefficient methods of weighing, counting, batching, measuring and testing bulk and unit materials in solid, liquid, or gaseous form. In materials and production control, for example, dial scales maintain a strict control from the receiving platform, through hundreds of processing operations and out to the shipping department. They reduce weighing operations to a simple "load and look" procedure. By making true weight determinations quickly and accurately, they save materials, conserve time and eliminate mistakes. They wipe out weight disputes and excessive shipping charges. They make printed weight records for the accounting, payroll and other departments.

Industrial dial scales serve industry as precision counting machines. They spotlight "hidden losses" in shipments and stock inventories, in rehandling of delicate parts and in the accurate accounting of manufactured parts.

For measuring operations, industrial dial scales assure uniformity and accuracy in batching concrete, asphalt, chemicals, etc., and in charging furnaces. Quality control and laboratory accuracy on the production line are made possible by dial scales to permit control of 100% of the output instead of sampling in checking and testing operations.

A colorful presentation of the important role played by precision industrial dial scales in American industry has been prepared by the Philadelphia Division of The Yale & Towne Manufacturing Company, makers of KRON springless industrial dial scales. This new, fact-packed story is available on request to any industrialist or businessman interested in lowering his production costs by eliminating the "hidden losses" in his materials handling program.



American Pioneers

The first flight in a powered, heavier-than-air craft was made in 1903, at Kitty Hawk, N. C. This bi-plane built by Orville and Wilbur Wright was piloted on its first flight by Orville.

FLYING MACHINES have revolutionized transportation, making distant peoples into practically near neighbors. We can easily anticipate shipping papermakers' felts from the nearby landing field in Canton, direct to you.

But the transportation of paper webs between couch rolls and dryers, will depend indefinitely on good felts for a "happy landing." You can depend implicitly on **DRAPER FELTS.**

Draper Felts For Efficiency

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

CANTON, MASS.

OUR REPRESENTATIVES *to serve you*

L. H. BREYFOGLE, Kalamazoo, Mich.
CHAS. E. BERTSCHY, Milwaukee, Wis.
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RALPH E. BRIGGS, Canton, Mass.
E. R. LELOFF, Vancouver, Wash.
WILLIAM N. CONNOR, Canton, Mass.

Control of Fuel Oil Sludge

By Dr. R. W. Mitchell, Tech. Dir., Magnus Chemical Co., Garwood, N. J.

Wherever a paper mill depends on oil as fuel for its power plant, the problem of sludge rears its head. Bunker C and heavy fuel oils, regardless of grade and quality, tend to accumulate sludge deposits in the storage tank which are not only troublesome there, but cause considerable difficulties in the firing system, once they have been allowed to accumulate to any extent. Where deposits have been allowed to build up, the time invariably comes when the suction of the fuel pump pulls sludge into the supply line. Clogged screens and burner orifices are immediate results, frequently necessitating shutdowns for cleaning which have to be repeated as long as the sludge is allowed to remain in the storage tank.

Bothersome as this cleaning process may be, the effects of sludge on combustion, burner efficiency and effective temperature control are far more costly. In addition, carbonized sludge in the burner often makes necessary complete dismantling of the burner system and replacement of nozzles.

Where sludge accumulations exist in the storage tank, their removal is far from an easy job. Ordinarily, the only practical procedure is to pump off the unsludged oil and then to muck out the sludge by hand. This is a time-consuming, unpleasant job which is undertaken as a rule, only when deposits are very heavy and shutdowns for cleaning screens and lines occur very frequently—often many times a day.

It should not be assumed, however, that sludge troubles are not present unless the deposit in the storage tank is heavy. It does not take a great deal of sludge to affect materially the efficiency of your burners.

Use of Chemical Agents

These sludge troubles can be controlled and in almost all cases eliminated, by the use of certain chemical agents which act as oil soluble dispersing agents on the sludge and water which are the basis of these difficulties. This type of agent disperses the sludge throughout the entire body of the oil, where it becomes a part of the main oil body and is burned with the oil as it is used. This treatment lowers the surface tension of the oil and the oil, with the dispersed sludge, has a lower surface tension than the unsludged oil, giving better atomization. Its viscosity is lowered as well, giving easier flow. The oil and dispersed sludge because of better atomization gives more complete and regular combustion. Thermal efficiency is improved and smoking reduced or eliminated.

When the proper type of chemical is used, no effects of any kind are noted on the products being fired. Organic agents are available which burn completely with the oil, and have the same products of combustion as oil—carbon dioxide, nitrogen and water vapor. They have no harmful effects on the metals and parts of the system and do not affect the flash point of the oil.

Very Small Amounts Required

Very small amounts are capable of doing the work of rendering a Bunker C or heavy fuel oil sludge-free, and of preventing the formation of sludge deposits. Relatively small quantities will clear up accumulations of sludge in storage tanks.

Used to inhibit sludge formation in storage tanks and supply lines, one pint is added to the oil in the storage tank for each 1,000 gallons of oil. This concentration is maintained at all times by adding the required amount of dispersing agent whenever more fuel oil is pumped into the tank.

Where a storage tank feeds another tank, or series of tanks, it is advisable to treat the main tank to insure sludge-free operation throughout the entire system. Where there is any appreciable amount of sludge present in the system before treatment of oil is begun, it is advisable to use the dispersing agent to dissipate the deposit before starting routine treatment of added oil, in order to be sure that the effects of the low concentration of dispersant for inhibiting purposes does not loosen sludge in lumps and slugs, thus causing acute sludge troubles. If you start with a tank in which the sludge has been completely dispersed as outlined below, the routine treatment of fresh oil will end any dangers of sludge troubles.

The dispersing agent can be readily used to clear up sludge accumulations. One pint is added to each 400 gallons of combined oil and sludge in the tank. It is preferable to mix the agent with a few gallons of light oil before adding to the tank in order to speed up its mixing with the oil in the tank. Mixing is not absolutely essential since the agent will, in time, disperse itself throughout the oil and sludge mixture. However, the action of the dispersant can be greatly hastened if the tank is agitated with air or by pumping immediately after the addition of the agent. It takes considerable time to disperse unagitated heavy sludge deposits. The ultimate effect is dispersal of the sludge in the oil to form a homogenous mixture which burns freely and completely and, as has been noted above, actually has less viscosity and lower surface tension than the unsludged oil. With extremely heavy sludge deposits the treatment may have to be repeated.

Advantages Are Many

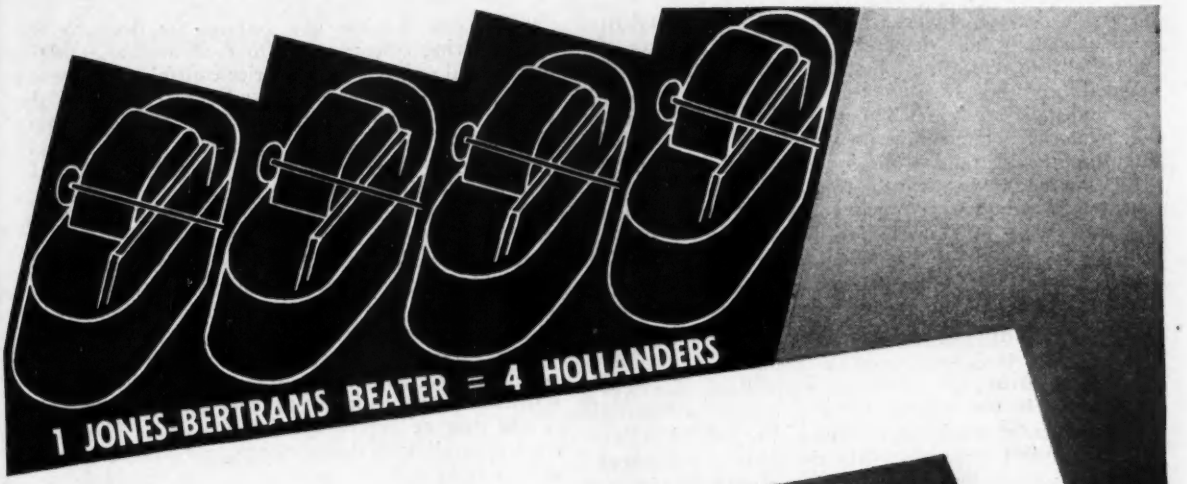
From the viewpoint of the paper mill power plant, the advantages of this method of sludge control are many. Lower surface tension and lower viscosity of the oil mean easier pumping, better atomization, more uniform combustion and a far more even flame at the burners. Combustion is more complete and thermal efficiency materially improved.

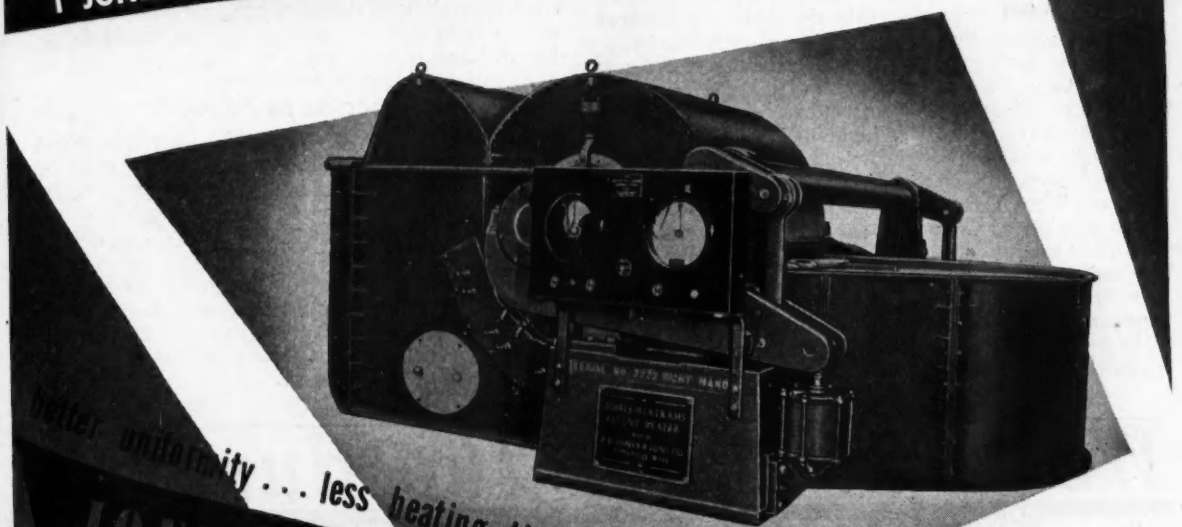
Soot and carbon deposits in the fire box are greatly reduced and the smoke nuisance—which is far more frequently due to sludge in the oil than to poorly adjusted oil-air balance, is brought under complete control.

The interruptions to steady boiler operation caused by shutdowns for cleaning out screens, valves, piping and burners are eliminated, while carbonization induced by sludge in burner orifices is reduced to the vanishing point.

Another Important Point

One other point deserves mention. An important factor in the formation of sludge in fuel oils is the accumulation of water in the storage tank. Pitting, rusting and leaking are far from infrequent results





better uniformity . . . less beating time

JONES-BERTRAMS PATENT BEATER

automatic control . . . h. p. savings

Jones

GEARED FOR WAR PRODUCTION

E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of Quality Machinery for Paper Mills

from neglect of sludge accumulations. Dispersal of sludge also includes dispersal of the water throughout the body of the oil, so that these troubles are also ended.

Sludge deserves much more consideration than it gets in the average mill power plant. It is one of those minor operating "bugs" which tends to be taken for granted. Only when the troubles it causes become acute do we give it much consideration, although adequate cost data on its overall effects in the course of a year would show it to be a far from negligible factor in operating expense.

Sets Contractors' Pulpwood Prices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 8, 1944—Services performed by one segment of the pulpwood producing industry in the northeastern area of the United States —independent contractors who do not own or control the stumpage and who are hired by pulpwood consuming mills—were provided with dollar-and-cent ceilings by the Office of Price Administration today.

These independent contractors, who heretofore have been frozen to their highest March 1942 prices, normally supply approximately one-third of the pulpwood consumed by mills in this area, which comprises Maine, New Hampshire, Vermont, New York and that portion of Connecticut and Massachusetts west of the Connecticut River.

Independent legging contractors in this area generally will receive higher prices for their services under the new ceilings established today, than under the previous "freeze" ceilings. The increases will be absorbed by mills that buy from these contractors.

OPA said that the new ceilings are desirable for the following reasons: (1) to facilitate the administration and enforcement of price control on pulpwood contract logging services; and (2) to check the shifting of large operations from contract logging services to company operations, which has the effect of increasing the ultimate cost of pulpwood to the consuming mills and threatening their ceilings on woodpulp and other finished paper products. Company operations are exempt from price control.

The new ceilings, which become effective November 11, 1944, do not apply to farmer-producers of pulpwood, nor do they apply to companies that assign their own employes to pulpwood cutting operations on their own limits. The former come under the pulpwood regulation for this area, while the latter operations are exempt from price ceilings.

The new ceilings range from $8.75 to $17.50 per cord, depending on the type of pulpwood, and whether delivered to rail car, lake or stream, roadside, mill by truck, or mill by vessel via tidewater.

Paper Sales Expand

WASHINGTON, D. C., November 15, 1944—Wholesalers' sales of paper and related products for the first nine months of this year, totaled $70,567,000, a gain of 4 percent over the corresponding 1943 period, according to the Bureau of Census.

September sales of the same kind, the report added, totaled $6,408,000, a drop of 9 percent from August, and 12 percent less than in September last year.

September inventories were 1 percent less than for August, and 7 percent less than for the same month last year.

We're in it for the duration

SINCE 1828

Continuously We Have Served The Paper Industry.

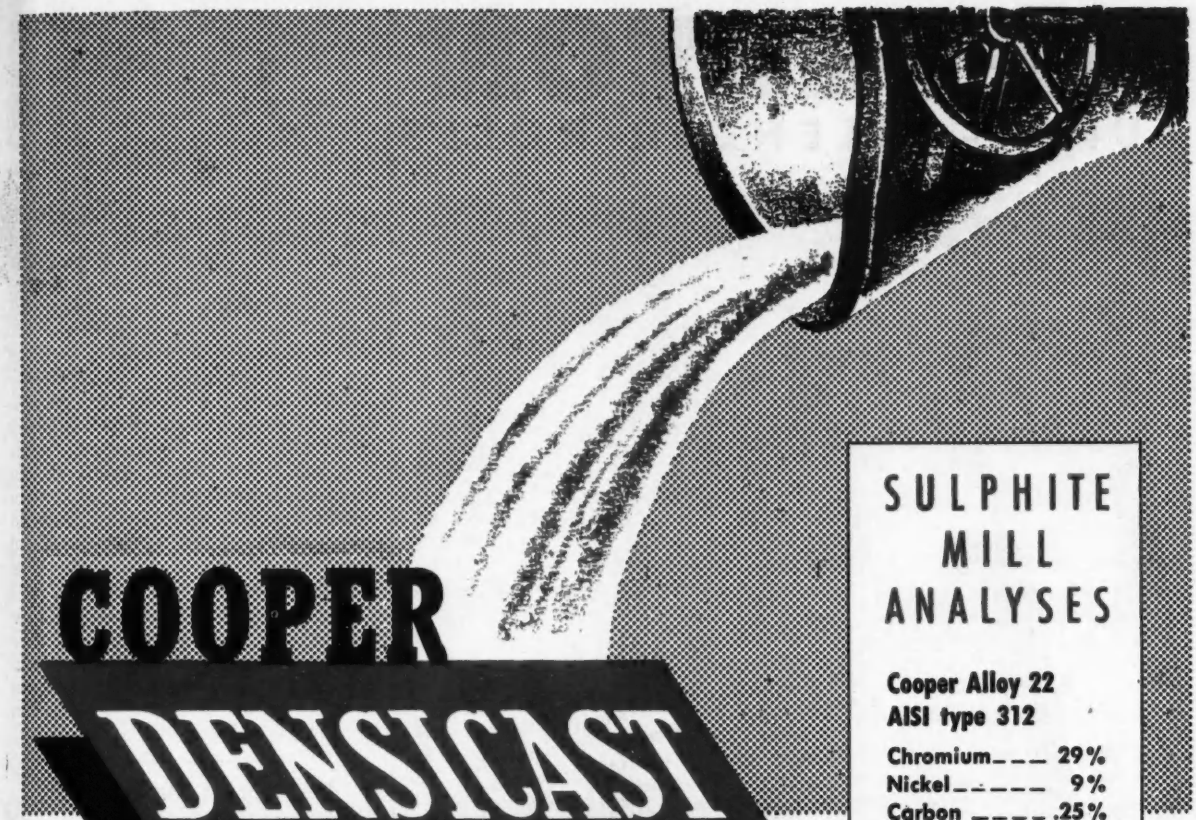
Since War II was declared we have used all our manufacturing facilities, and done our small part to help build our fighting machine for war.

At the same time we have been planning for peacetime equipment and improvements NOW!

We have some of our machines available to produce new machinery for civilian products.

Paper Machines
Paper Bag Machines Paper Cutters
Can be built with a PDIA Priority rating.

THE SMITH & WINCHESTER
MANUFACTURING COMPANY
PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT



COOPER DENSICAST

STAINLESS CASTINGS

Superior grain refinement with a resultant denser structure makes Cooper Densicast stainless castings stand up longer in sulphite pulp mill service. They have greater corrosion-resistance and higher physical properties without departing from standard chemical compositions such as AISI — types 312, 316 and 317.

This is but one of many ways in which this foundry provides specialized casting services for sulphite mills. Services founded upon experience with the specific requirements of sulphite mills. We have made stainless castings for the paper industry since 1928. Some of them are still in service.

SULPHITE MILL ANALYSES

Cooper Alloy 22
AISI type 312

Chromium	29%
Nickel	9%
Carbon	.25%

Cooper Alloy 17 SMO
18-8 SMO
AISI type 316

Chromium	18%
Nickel	8%
Molybdenum	3%
Carbon	.10%

AISI type 317

Chromium	19%
Nickel	12%
Molybdenum	3.5%
Carbon	.10%

THE Cooper ALLOY FOUNDRY CO.
STAINLESS—MONEL—NICKEL

145 Bloy Street
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Work for Veterans

With much of the responsibility for the veteran's return to normal life falling upon industry, individual companies today are making plans not only to take back into their organizations those of their own employees who have become disabled but to absorb as many other handicapped service men as possible. Based on the plans of 54 companies, the new report, "The Employment of the Handicapped Veteran," issued by the Policyholders Service Bureau, Metropolitan Life Insurance Company, discusses the determination of company policies, and the procedures and organization for carrying out these policies.

The survey covers such problems as: job analysis from the standpoint of the physical requirements of the job, adaptation of jobs to the handicapped, determination of the veteran's physical and mental abilities and limitations, instruction of the handicapped to the job, education of the foreman in the treatment of the handicapped, training of the handicapped, their supervision, their medical check-up, their adjustment to plant conditions, and transfer to other jobs.

According to the experiences of companies employing handicapped workers, it has been found that the physically deficient man may excel in his job if his rehabilitation has been carefully supervised and he is employed on the basis of his remaining capabilities. Foremen report that handicapped workers are a steadying influence in their departments and that they compare favorably with normal workers in four respects—absenteeism, labor turnover, accident rate and productivity.

Included in the report are descriptions of the plans of two companies cooperating with the armed forces in teaching the hospitalized veteran an occupational skill which he can master and which will help to rebuild damaged muscles. Several combined plans of community and industry are also discussed.

A copy of this report is available to executives who request it on their business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison avenue, New York 10, N. Y.

Newsprint for October

Production of newsprint in Canada during October 1944 amounted to 258,301 tons and shipments to 262,998 tons, according to the News Print Service Bureau. Production in the United States was 61,994 tons and shipments 62,537 tons. The output in Newfoundland was 23,903 tons and shipments were 33,028 tons making a total North American production of 344,198 tons and shipments of 358,563 tons. Total production in October 1943 was 347,229 tons and shipments were 335,173 tons.

The Canadian mills produced 13,282 tons more in the first ten months of 1944 than in the first ten months of 1943, which was an increase of five tenths of one percent. The output in the United States was 80,094 tons or eleven and eight tenths percent less than in the first ten months of 1943; in Newfoundland production was 36,664 tons or nineteen and six tenths percent more, making a net decrease of 30,148 tons, or nine tenths of one percent less than in the first ten months of 1943.

Stocks of news print paper at the end of October were 45,028 tons at Canadian mills, 6,634 tons at United States mills, and 37,761 tons at Newfoundland mills, making a combined total of 89,423 tons compared with 103,788 tons on September 30, 1944, and 129,467 tons at the end of October 1943.

1583 Uses for Glycerine

The great number of uses for glycerine listed in this booklet just published by the Glycerine Producers' Association indicates that there are few industries which do not, at some stage, employ this versatile fluid. The booklet is entitled "Nothing Takes the Place of Glycerine—1583 Ways to Use It." It declares that no satisfactory substitute has been found for the full range of applications offered by this one product.

"Glycerine, now in ample supply," says the introduction, "has not only a multitude of industrial applications but also extraordinary popular appreciation. Its value in the composition of life-saving drugs and for other war uses is known from one end of the country to the other. Glycerine for medicines, glycerine for foods and beverages, glycerine for scores of other purposes in the home is becoming more widely used each day. Manufacturers, processors and distributors who heretofore have failed to use this versatile fluid—or to emphasize its presence when it was used—now find that glycerine in their formulas is a definite asset for consumer acceptance."

The 1583 uses are named under the following headings: Adhesives and Pastes, Agriculture; Air Conditioning and Refrigeration, Automotive, Beverages, Cements, Chiropody and Podiatry, Cleaners and Laundry Aids, Cleanliness, Sanitary and Personal Hygiene, Cosmetics and Toilet Preparations, Dentistry, Diagnosis, Laboratory and Clinical, Drugs and Pharmaceuticals, Electrical, Explosives, Foods, Glass, Ceramics, Abrasives, Laboratory, Leather, Lubricants, Metals, Packaging Materials (other than paper), Paper, Perfumes, Photography, Plastics and Molding Compositions, Printing, Lithography, Inks, etc., Protective Coatings (Paints, Varnishes, Lacquers, Enamels), Rubber, Textiles, Tobacco, Veterinary Medicine, Wood, and Miscellaneous.

Chemists, manufacturers, and others interested professionally or commercially in the uses of glycerine may obtain free copies of this booklet by writing to Glycerine Producers' Association, 295 Madison avenue, New York 17, N. Y.

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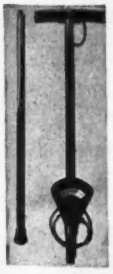
By checking and correcting faulty surface temperatures in the drying-roll train, you will eliminate one of the most common causes of spoilage and poor quality paper. It is quick and easy to check these temperatures with the Cambridge Surface Pyrometer. This accurate, quick-acting instrument is so easy to use, workers *will* use it. The extension model permits you to reach those hard-to-get-at places. Send for descriptive bulletin 194SPT.



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Federal Agencies

Citizens National Committee, Inc., an independent research agency of Washington, D. C., has published this week the first available handbook on certain details of the Federal government structure. In 68 pages the booklet, called "Federal Agencies," presents a descriptive tabulation of 428 functional units of the Federal Government as of June 30, 1944. It lists name, describes function and gives method of creation, year of creation, 1944 appropriation and 1944 estimated personnel for each agency.

Designed to aid citizens to know their Government and to enable them to take part in the all-important discussion of Federal reorganization which must follow the war, the tabulation is strictly factual. It provides summary tables of its contents, breaking down the Executive, Legislative, Judicial and Corporate Branches of Government by their major agency and department groupings, and showing the totals for method of creation and year of establishment. More than 50 percent of the agencies listed are reported as established since 1930.

Since a joint committee of Congress, and the Executive through the Bureau of the Budget, have each asked departments and agencies to estimate their postwar cash and personnel needs at this time, the publication of such information for citizens is particularly timely.

Michigan Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., November 17, 1944—The Michigan Division of The American Pulp and Paper Mill Superintendents Association held its November meeting at the Park American Hotel on November 16 with fifty-five present.

Chairman Joe Waber presided and expressed satisfaction with the good turnout. He announced the date of the annual joint meeting of TAPPI and Superintendents Association to be January 11, 1945, the place not yet selected.

Two speakers, both associated with the American Cyanamid and Chemical Corporation were on the program and read papers. Harold Sinclair, sales and technical engineer of the Kalamazoo plant told of the methods of application of resins in strength papers. Samples of six grades of paper showing the results of the process were distributed to each individual in the audience and proved to be an aid in following the contents of his paper on this subject.

Following Mr. Sinclair was Carl Bottenger, sales manager of the Plastic Division of his company's New York office who read a paper on the place amino resins fill in the manufacture of plastic articles with paper as a base.

N.P.T.A. Postpones Convention

A. N. Chamberlain, executive secretary of the National Paper Trade Association has sent out the following notice:

"On October 24, we issued Bulletin No. 500, announcing the dates of our annual convention regularly held in February. Subsequently, we have had a letter from the Office of Defense Transportation urging us not to hold that meeting. A similar letter was also received by the American Paper and Pulp Association, which, together with serious warnings from the Waldorf as to providing satisfactory accommodations, led them to announce cancellation.

"In consideration of the above, and by instructions of President Harris, a poll of our executive committee has been taken, resulting in the decision by unanimous vote that our convention should be postponed until emergency conditions are sufficiently relieved to permit such a meeting. Meantime, under our by-laws, the present elective officers will continue to serve 'until their successors are elected and installed.'

"If as, seems probable, it becomes desirable to hold a special meeting of our executive committee, it will be called by the president some time in the spring. If more favorable conditions have been developed, it is possible that a one day regional meeting, similar to the Mid-West regional meetings might be arranged at that time."

Call Special Meeting for N. E. Paper Men

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 20, 1944—A special meeting for all New England paper jobbers whether members or not of the New England Paper Merchants Association, is called by that organization for December 13 at the Parker House. A social session at six o'clock will be followed by a dinner.

W. G. Leathers, assistant secretary of the National Paper Trade Association of the United States, will be present to discuss various matters of current interest to the paper distributing industry. Representatives of Government agencies will be present. All non-members, as well as members, are invited and urged to attend the meeting.

5,000,000 AMERICANS
WILL DEPEND ON FOREIGN TRADE FOR THEIR POST-WAR LIVING

Do you know that in a normally prosperous peacetime year, foreign trade accounts for around 10% of our national income? After the war, that 10% will mean secure jobs for more than 5,000,000 Americans. But to get and hold foreign trade, you must go out after it . . . just as you go out after national business.

The Department of Commerce estimates that to avoid unemployment after the war, we must have jobs for 55,000,000 workers and returning veterans. Over 5,000,000 of these jobs, economists state, will depend upon foreign trade.

Do you want your share of present and post-war export business? Have you a department headed by specialists with world-wide contacts to assure you of your just percentage of this export trade?

HERE IS YOUR EXPORT DEPARTMENT

Join a limited group of manufacturers of non-competing lines.
Have your own export department in New York. Assure yourselves of getting the major percentage of the available business by following a time tested plan, details of which will be given later if you are interested in joining the group.

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COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Empire State Section. Technical Association of the Pulp and Paper Industry—Second Thursday of each month at the Woodruff Hotel, Watertown, N. Y.

Chicago Professional Paper Group—Third Monday of each month except July and August at Chicago Bar Association, Chicago, Ill.

THE MILL NUMBER

Post-war plans for the paper industry are of necessity contingent upon the progress of the war and not until victory is won in Europe can the long pent up need for building, the more extensive replacements and a great deal of the required equipment for the adequate maintenance of the growing industry be realized. Nothing must interfere with the maximum speed in the march to victory. At the present time, under the urgency of providing essential supplies of wood pulp and paper of many kinds, much progress is being made in constructing new buildings, erecting additional manufacturing space to existing capacity and in the installation of new and more efficient machinery and equipment. There always exists a need for more scientific knowledge applied to the manufacturing methods and operation of pulp and paper mills. William G. MacNaughton in his article in this twenty-first issue of the Mill Number of the Paper Trade Journal presents an important and constructive summary of the numerous improvements which will be included in the post-war program of the paper industry. The industry has established a notable record in meeting the extraordinarily heavy demands of war and the always large demands of paper for civilian uses. This record is more remarkable when it is considered how little machinery and replacement materials have been made available to maintain the continuous operation of paper and pulp mills.

It is generally assumed that the post-war years will bring a return to the active competition which has previously existed in the paper industry. Our industry, in common with many other major industries, is now operating at the highest level of wages, cost of materials and under the heaviest taxes in its history. Post-war taxes must continue to remain relatively high and labor and all manufacturing costs can scarcely be reduced to the pre-war level. It, therefore, seems imperative for successful operation in the future, that mills be provided with the most efficient equipment to reduce costs as much as it is practicable to do so. There are numerous steps in the manufacturing processes of pulp and paper where economies can be made to reduce the over-all cost of production. The extensive utilization of by-products alone promises to become in the post-war years an important industry in itself. As the manufacture of paper is a mass-production industry, time and labor saving equipment and methods are of great importance and our mill equipment concerns are prepared to contribute much improved machinery in the post-war period.

Speed of the Fourdrinier papermaking machine, to mention but one unit in the paper mill, is an essential factor in the production of the inexpensive grades of paper at relatively low cost. In commenting on this machine Mr. MacNaughton considers the four types, one of which is now in use in making facial tissue and other very light papers, designed to run at speeds up to 2,000 feet per minute. In contrast with the speeds of the Fourdrinier machines of today, "Paper Manufacturing in the United States, by Lyman H. Weeks, published by the Lockwood Trade Journal Company in 1916, gives the following interesting account of the papermaking machines of an early date. "In 1872, the *Paper Trade Reporter* of New York stated as a surprising fact that, while the ordinary speed of the Fourdrinier machine was from 60 to 80 feet per minute, on printing paper, there was then one machine running at the rate of 175 feet per minute, producing 25 tons of paper weekly. Nevertheless paper makers in Europe and the United States still continued doubtful. Their views as late as 1873, were accurately expressed by one writer: 'If every part is constructed with the utmost care, substantially and true, a machine with a wire 33 feet in length and seven drying cylinders of 3 feet diameter, can make newsprint paper at a speed of from 100 to 130 feet per minute. The width of the machines has also been increased until wires 86 inches wide are now quite numerous, and some of 90 inches and even 100 inches are in use.'

The author continues: "Not long after this, in 1880, a Fourdrinier was built for the mill of P. H. Glatfelter, in Spring Forge, Pa., that had a speed of 200 feet per minute. From that time on the pace was steadily increased until, before 1897, machines 160 inches wide had been built, an increase of 60% in 30 years. There were four mills equipped with machines capable of making merchantable newspaper continuously at 500 feet per minute, an increase of 400% in the 30 years that had elapsed since 1867. Those four were in the plants of the Glens Falls Paper Mill Company, Glens Falls, N. Y., the Hudson River Pulp and Paper Company, Palmer's Falls, N. Y., the Glen Manufacturing Company, Berlin, N. H., and the Willamette Pulp and Paper Company, Oregon City, Ore. The largest machine then in the world, 1897, was a Fourdrinier built by the Rice, Barton & Fales Machine and Iron Company for the Rumford Falls Paper Company, Rumford Falls, Me. The felts for this machine were 172 inches wide and the width of the paper run was 152 inches. At that time, in striking contrast with this big machine, was the smallest machine in the world, which had been built by the Pusey & Jones Company, Wilmington, Del., for the Heller & Merz Company, Newark, N. J. The machine had one forming cylinder, 14 inches in

diameter and 15 inches face; one pair of press rolls, 16 inches in diameter and 14 inches face, and three dryers, 15 inches diameter and 14 inches face."

Machinery is being made available now for essential paper mill equipment, Allan Hyer, Chief of Distribution Section, Pulp and Paper Division, War Production Board, announces in this issue. The report states that the basis of approval will be the absolute need for equipment to maintain continuous operation or to increase production by improving efficiency. A high percentage of operation or reserve production orders will be a substantial recommendation for approval. Effort is also being made to assist on equipment other than recognized paper machinery, as boilers and turbines and the concurrence of the Paper Division will be given in support of such cases as appear urgent. Through the process of reconversion now in plan, the report goes on to state, it is expected that the transition in the machinery manufacturers plants will progress without much delay. It is expected that the productive capacity for building paper mill equipment will be twice as large as the pre-war level.

Paper Mill Shipments Lower

WASHINGTON, D. C., November 22, 1944—September value of paper mill shipments was 172 compared with 175 for August and 161 for September of last year taking an average month of 1939 at 100 according to the monthly industry survey of the Department of Commerce.

The value of paper mill inventories for September was 142.3 compared with 144.7 for August and 133.3 for September of last year.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
Oct. 7	94.8	Oct. 9	90.9
Oct. 14	94.7	Oct. 16	90.2
Oct. 21	91.6	Oct. 23	88.8
Oct. 28	92.7	Oct 30	88.5
Nov. 4	94.1	Nov. 6	89.9
Nov. 11	*92.3*	Nov. 13	89.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3	91.0	88.3	89.6	89.6	82.0	87.8
1944	89.6	89.6	89.2	88.8	89.7	90.7	81.1	92.5	90.1	*93.6*			

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date	83.7	71.1	82.0	86.1	96.6	91.9	88.4	*90.2*
Year Average	79.8	71.5	83.4	85.6	97.4	90.4	87.8	

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	96	96	96	85	96	92	*95*			

Week ending Oct. 7, 1944—96 Week ending Oct. 28, 1944—95
Week ending Oct. 14, 1944—96 Week ending Nov. 4, 1944—96
Week ending Oct. 21, 1944—94 Week ending Nov. 11, 1944—*96*

† Percents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

F. G. Coburn, president, has announced that on December 1 Brown Company will make its semi-annual payment of interest on its general mortgage 5% cumulative bonds for the six months ending November 30. Checks will be mailed to all registered owners as of the close of business on November 30.

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All these aids to better and stronger paper manufacture make PAREZ a wartime favorite with the armed forces for military applications such as maps, lens polishing, machinery cleaning, blueprint and photographic papers, tags, charts and bags. Write for details or talk with your Cyanamid representative to learn how PAREZ can fit into your peacetime marketing plans and open new and larger uses for your papers.

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122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

The Use of Sulphur in Various Forms in the Manufacture of Paper Pulp*

By Sidney D. Wells[1]

Abstract

The beneficial use of sulphur in some form as an important component in the pulping of vegetable fibrous material has been practiced for many years. The extent to which this is possible, however, is not generally known and it seems worthwhile to summarize the knowledge on the subject and present it as a technical and historical review, with the hope that it may interest workers in the field and contribute to some extent to further progress in the art.

Sodium Sulphide in Pulping

Since the investigations of Asahel K. Eaton *(1)* as disclosed by patents issued in 1864 and thereafter, the beneficial effect of sodium sulphide as an ingredient of alkaline cooking liquors has been so recognized that, at the present time, substantially half of the chemical pulp made in North America is made by the so-called sulphate process, in which sodium sulphide plays an active part. Primarily, the penetrating properties of this chemical into wood chips is far superior to caustic soda. It is not adsorbed onto the fibers to any noticeable degree, as is the case of caustic soda, and the swelling of the fibers that accompanies the adsorption phenomenon is absent. The resin ducts, vessels, and tracheids remain open to the passage of the cooking liquor whereas, in the case of caustic soda in the absence of sodium sulphide, the passage of liquor is considerably retarded by the swelling that accompanies the contact of caustic soda with the wood.

Although the presence of sodium sulphide is conductive to more rapid and thorough penetration of the cooking liquor, more uniform cooking throughout the chips, and a great saving in the time required for cooking, it is necessary to have more alkalinity present than can be supplied by the amounts of sodium sulphide that can feasibly be furnished by any practical and efficient recovery operation and it is therefore desirable to add whatever additional alkalinity is needed in the form of caustic soda derived from the causticization of sodium carbonate which also occurs in the recovered soda. The action of this chemical in the amounts required is usually sufficiently drastic to noticeably reduce the yield of pulp obtainable and degrade the cellulose thereof so as to reduce the strength and toughness of the paper, board, and cellulose derivatives of every kind that can be made therefrom. Properties such as permanence of paper and stability of derivatives are also adversely affected. It is evident that it is not so much the total amount of active alkali used as the degree of alkalinity which does the damage. Sodium sulphide is capable of acting as a buffer and the amount of alkali needed to complete the cook may be added in the cooking charge without raising the degree of alkalinity at the start to a point detrimental to the cellulose.

In order to prove the premises expressed in the previous paragraph, cooks have been made *(2)* in which the alkali required was added while the cook progressed at such a rate that the alkalinity never exceeded about 20 grams per liter of active alkali and, at the same time, the pH was never permitted to go below 11. Under such conditions it was found that, with northern jack pine, most of the buffer action of the sodium sulphide could be produced mechanically by the manner in which the caustic soda was added to the cook. It was found, however, that the beneficial effect on the penetration of the pine chips by the cooking liquor could not be obtained unless at least 3.8% of sodium sulphide, based upon the weight (moisture-free basis) of the wood, was present in the cooking liquors. Considering typical cooking conditions for a strong pulp, this amount of sodium sulphide indicates a sulphidity of 17.6% or only half of the proportion popularly considered to be necessary. The lower concentration of caustic soda and the reduction in the swelling attendant thereto are not sufficient alone and the sulphidity indicated is desirable when cooking coniferous woods. The small degree of sulphidity required where the cooking liquor is injected into the digester only slightly faster than it is consumed during the cook makes possible the economic operation of kraft cooking without the use of salt cake but with the use of sodium carbonate and sulphur to make up for the losses in the recovery cycle. It also makes possible higher yields of more easy-bleaching pulp which is stronger and the cellulose of which is less degraded.

Sodium Sulphite in Neutral Pulping

Cross in British patent 4984 (issued in 1880) dis-

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*The material for this paper was assembled for The Texas Gulf Sulphur Company and is published with their permission.

[1] Member TAPPI; Research Associate, The Institute of Paper Chemistry, Appleton, Wis.

closed the possibility and the conditions for cooking wood chips with cooking liquors consisting almost entirely of sodium sulphite as the active agent. Patents have since been issued covering the same procedure but little if anything has been added to the art except the possibility of obtaining the digesters of welded construction and of large capacity which are capable of operating under working pressures of 125 p.s.i. or more. Digesters of this character were not available at reasonable cost until recently. This fact is the main reason why commercial operation of the so-called Sodite or Keebra process did not take place until about 1920, simultaneously with the issue of patents covering the same process to Bradley and McKeefe. These patents have thereby assumed a prominent part in discussions of the subject since that time.

Cooking with sodium sulphite in general requires temperatures of 180° C. or more, which are 10° higher than those used in good kraft pulping practice. In fact, kraft pulps may be cooked at temperatures as low as 150° C. without taking prohibitive time or amounts of chemical, whereas sodium sulphite cooks require a prohibitively long time for cooking if a temperature as low as 170° C. is used. The penetration of the chips is also sluggish and complete cooking is required to obtain uniform pulps with a reasonably low amount of screenings.

The pulps obtained, however, are much lighter in color than kraft pulps from the same species and pulps from deciduous woods, such as aspen and white birch, are capable of producing papers with surprisingly high bursting strength, comparable with the best that can be obtained with spruce sulphite. The pulps obtained with this process usually bleach more easily than kraft pulps obtained from the same species and the bleached pulps are closer to the blue-white shade of bleached sulphite than to the natural shade of bleached kraft. The development of chlorination and multistage bleaching of kraft in the thirties has obviated the need for the neutral sodium sulphite cooking process and, at the present time, there is only one mill that uses it at all and at that for only a small portion of its pulp requirements, which are also met by using the conventional acid sulphite process, the kraft process, and the soda process. Much less pulp is now being made than was made 15 years ago and it is doubtful whether the tonnage now being made would exist if facilities for its manufacture had not been installed in the twenties and are now available. It is easier to make the pulp from time to time so as to supply furnishes which have been developed, than it is to devise new furnishes confined to the use of the more common pulps.

The recovery of the soda, using the neutral sodium sulphite process, has never been worked out. The only mills that use it send the black liquors obtained therefrom to the kraft recovery furnace and use the smelt obtained in the make-up of kraft liquor. This is necessary because the sodium sulphide which occurs in large proportions with the sodium carbonate in the smelt is converted to sodium thiosulphate and other undesirable compounds polythionic in nature on treatment with sulphur dioxide and not to sodium sulphite as is desired. Over 40% of the smelt in each cycle is sodium sulphide which acts according to the following reaction on addition of sulphur dioxide,

$$2\,Na_2S + 3\,SO_2 = 2\,Na_2S_2O_3 + S$$

The sulphur thus formed combines with a molecule of sodium sulphite formed from the carbonate to produce another molecule of sodium thiosulphate. It is thus evident that 40% of the smelt is not only rendered practically inert but that sulphur formed renders inert at least another 20% so that over 60% of the sodium sulphite used in cooking is rendered inert every time it passes through the cooking cycle.

The quantity of sodium sulphite required to make a satisfactory cook will run from 45 to 55% of the dry weight of the wood charged. This is equivalent to from 28 to 35% of caustic soda and sodium sulphide or about 50% more soda base than is required in kraft cooking. It is evident that, without very efficient recovery of the soda, the use of the neutral sodium sulphite process is not at all feasible.

Many methods have been proposed for the conversion of the sodium sulphide in the smelt to sodium carbonate. The most feasible way *(3)* seems to be to sinter the moistened black ash mixed with sodium bicarbonate and drive off the sulphur in the form of hydrogen sulphide, which can be burned in the sulphur burner with the sulphur used to produce sulphur dioxide for the conversion of the sodium carbonate to sodium sulphite. More than enough carbon dioxide is produced in this step to produce the sodium bicarbonate needed for the operation. Whenever there is a need for the neutral sulphite process in a plant not having a kraft operation located alongside, the procedure outlined above will make the operation feasible. Where both kraft and neutral sulphite pulp are made in the same mill, the proportion of the latter can be increased by the separation of much of the sodium carbonate present in the green liquors from the remainder, because of the greater solubility of sodium sulphide. The only reason it has not been done is that there has never been any great urge to do it.

Sodium Sulphite in Alkaline Pulping

Not only is the use of sodium sulphite as a neutral pulping agent feasible but it is possible to operate a typical kraft mill by making up whatever loss of soda occurs in the cooking and recovery operations by the addition of soda ash to the system in the form of a solution which has been treated with sulphur dioxide in an absorption tower. The addition should take place after the causticization of the dissolved smelt and no salt cake should be added to the smelters with the black ash as is the usual practice. Necessary sulphidity and all the characteristics desired in kraft pulp can be obtained. With modern recovery equipment a sulphidity is easily attainable which is greater than that needed when the impregnation-injection method of cooking is used and it is probable that the complete conversion of all of the soda ash used to sodium sulphite would not be necessary. In plants where the efficiency of recovery is not so great, the proportion of sodium sulphite to sodium sulphide in the cooking liquor must be higher and a somewhat longer cooking time will be required. The impregnation-injection method of cooking would reduce this increase in cooking time to a minimum and insure optimum yields of a more easily bleaching pulp which is stronger and with cellulose that is less degraded. With salt cake, soda ash, and sulphur at the prevailing prices, the cost of the operation would be no more than the cost using the more conventional recovery.

Semichemical Pulping

In the twenties a new type of pulp was put into commercial production as a result of the work of Rue, Wells, and Rawling *(4)* at the Forest Products Laboratory. This pulp is now indicated in the circu-

lars on wood pulp production issued by the United States Census as "Semichemical Pulp." In the neighborhood of 150,000 tons per year is now manufactured and it is largely responsible for the survival of the chestnut tannin extract industry. It was also the opening wedge to the use of other types of corrugating paper, in addition to straw 9-point, in the manufacture of corrugated fiber containers. The process is not only applied to extracted chestnut chips but to gum, oak, and other hardwood mill waste, and even to straw in the manufacture of so-called "Nu Process" egg case filler boards. Simultaneous with the development and at one time considered part of the same was the introduction of the idea of "beating with rods" *(5)*. All of the patents involved in the "semichemical" development are public property and there are no restrictions to their more general use.

In the operation of the semichemical process, the cooking liquor is made up by the treatment of a solution of soda ash with sulphur dioxide, and consists of a solution of sodium sulphite and sodium bicarbonate —usually about 80% of the former and 20% of the latter. In the cooking of straw, however, the ratio is reversed. From 7 to 12% of chemical on the weight of the fibrous raw material are used and the cooking is conducted at temperatures of from 130 to 150° C., depending upon the strength of the globe rotaries available for the purpose. The material produced is not pulped but merely softened uniformly so as to be capable of pulping mechanically and giving yields of 75%. Complete separation of the fibers is obtained without shortening or formation of debris. With yields of 75% much of the lignin, pentosans, and other constituents of the wood, as well as the cellulose, are retained but, for many purposes, this fact is not objectionable. Light colored woods, such as birch, poplar, maple, black, and tupelo gums, etc., yield pulps which are as light colored as groundwood and unbleached sulphite from spruce and it is possible to supplement and largely replace the bleached kraft pulps used with groundwood pulps in newsprint manufacture by the use of semichemical pulps from southern hardwoods. Where stream pollution is not objectionable and recovery is not economically necessary, the cost of the plant is reduced to one-third of that required for plants of equal capacity to manufacture chemical pulps. Wood free from bark, heart rot, sap stain, or other discoloration is necessary, however, and a preliminary study should be made of the species and character of the wood available in any locality and its pulping characteristics before embarking upon any specific project.

Sulphur in Alkaline Pulping

Not only is the introduction of sulphur into the pulping processes feasible in the form of sulphur dioxide and sodium sulphite and in the form of sodium sulphide by means of the recovery process through the reduction of sodium sulphate but it may be added directly to the digesters or the alkaline cooking liquors in the elemental form. Any reasonable sulphidity can be attained, either by adding the sulphur to the digestors at the same time that the chips are charged and later the solution of caustic soda, which is the cooking liquor used, or the sulphur may be dissolved in the caustic soda solution by heating before adding to the digester. Which step is taken is merely a matter of convenience. In most mills it would seem simpler to add the sulphur to the digester as the chips are being loaded. The sulphur should be broken up into lumps not larger than split peas and should be distributed throughout the chip charge.

Work completed recently at The Institute of Paper Chemistry supports this opinion; the effects produced when sulphur is added to the chips would indicate that the following equation occurs:

$$6\,NaOH + 4\,S = 2\,Na_2S + Na_2S_2O_3 + 3\,H_2O$$

Degrees of sulphidity up to any considered desirable in kraft cooking may be attained and in plants not equipped with smelters or wishing to avoid smelter operation, the use of sulphur in the digesters is often practiced. In pulping deciduous species, such as the poplars, birches, maples, beech, gums, oaks, etc., less sulphidity is usually deemed necessary, so that the amounts of sulphur added in charging the digester is not sufficient to delay the charging operation.

Not only is sulphur added directly to the digester in conjunction with caustic soda liquors but it is used also in conjunction with sodium carbonate in the production of the so-called "straw kraft" corrugating paper made from wheat straw *(6)*. Straw cooked in this way is also free from the disagreeable odor characteristic of lime-cooked straw board and the product is also suitable for the manufacture of odorless egg case fillers, flats, and packages of every sort which must not impart objectionable odor or taste to food products. The strength characteristics are similar to those of Nu-Process filler board and from 50 to 100% greater than for lime-cooked straw board.

Asahel K. Eaton *(7)* in 1870 suggested the use of lime and sulphur as a pulping agent. Viggo Drewsen *(8)* developed the idea into a practical process which was operated commercially for many years in the production of very strong and dense paperboard for making buttons, parts of electrical fixtures, and other uses which demand exceptional strength and rigid sheets where depth of color is not objectionable.

Sulphur has been suggested also for use in deinking *(9)*. Its use in this operation is probably competitive with use of colloidal clay, such as bentonite, where the physical and colloidal characteristics of the material are important. The low melting point of sulphur might also be used to advantage in such an application.

Acid Sulphite Pulping

The use of sulphur in the acid sulphite process is well established and at present constitutes a very important outlet. The use of calcium and dolomitic limes for the base is universal and the literature on the subject is more complete and voluminous than that for any other pulping process, even though it is rapidly losing the dominant position which it has held for the past half century. The serious pollution of streams which attends the practice of this process will probably hasten its abandonment as the country becomes more civilized and intolerant of long standing abuses. The waste liquor, however, may be concentrated and burned with the net result that the fuel consumption of any mill so doing will be reduced by half a ton of high-grade coal for the liquor so utilized from every ton of pulp manufactured. With the recovery of the fuel value of all of the wood substance dissolved in the pulping operation, the recovery of the base and much of the sulphur in the form of sulphur dioxide also results and it is possible to use bases such as magnesium and sodium which would be prohibitive in cost where recovery was not practiced. These bases make possible the production of superior pulps and

the extension of the wood supply of sulphite mills to species not satisfactorily pulped in present practice.

The use of magnesium as the base *(10)* makes possible a very simple and neat recovery process because, in burning the concentrated waste liquors, a temperature may be maintained in the furnace that liberates all of the sulphur present in the form of sulphur dioxide and the magnesium in the form of magnesium oxide. Recovery of each of these products *(11)* is a straight forward and economically feasible operation, as is their use in the preparation of fresh cooking liquors. Installation of facilities for the recovery of the fuel value of spent sulphite liquor, as well as the magnesium base and sulphur dioxide, in the mill of one of our largest and most outstanding pulp producers was prevented becaues of the entry of the United States into the war *(12)*, but it is expected that the plant will be erected as soon as stainless steel and other material are available.

The use of sodium as the base in acid sulphite liquor makes recovery more difficult. With this base sulphur trioxide, as well as sulphur dioxide, occurs among the products of combustion when the black liquors are burned. The smelt also contains sodium sulphide, as well as sodium carbonate, and must be further modified before the base can be successfully treated with sulphur dioxide to form sodium sulphite. It is entirely possible, however, to overcome this difficulty by the treatment of the smelt with sodium bicarbonate *(3)*, as was pointed out in the preceding discussion of neutral sulphite cooking and recovery, and the demonstration of that procedure on a commercial scale is highly desirable.

Where a sulphite mill is located in the neighborhood of a kraft mill, it is also possible to cook with soda base, recover, concentrate, and burn all of the spent cooking liquors with the concentrated spent liquor from the kraft cooking, and use the smelt obtained from the joint recovery for the preparation of cooking liquor for the kraft mill. It is also feasible to continue to run the smelt into the dissolving tanks until a large portion of the sodium carbonate in the smelt is separated from the sulphide because of differences in the solubility of the two. The separated sodium carbonate would then be sent to the sulphite mill and the sodium sulphide, together with the sodium carbonate remaining in solution, would be used in the kraft mill. Any ratio of kraft to sulphite production would thus be possible. The recent articles by Schur and co-workers *(13, 14)* are of interest in this connection.

Sulphur Dioxide in Bleaching

Not only is sulphur dioxide a pulping agent but, because of its reducing properties, it is capable of use as an antichlor in bleaching with hypochlorites and as a bleaching agent in raising the brightness of groundwood, or unbleached kraft and sulphite pulps.

The use of an antichlor is a confession of poor operation, and inadequate bleaching and washing facilities, and is seldom practiced in modern bleach plants.

The brightening of groundwood, unbleached kraft, and unbleached sulphite pulps with sulphur dioxide is also a practice that is seldom, if ever, practiced in modern operation. The conversion of sulphurous acid to zinc hydrosulphite by means of zinc dust and the use of the latter *(15)* is a practice that is becoming more general. Small plants purchase the zinc hydrosulphite, whereas very large consumers make the chemical at the point of use. Liquid sulphur dioxide is required for this purpose, approximately 5 points of brightness can usually be obtained by the use of 10 pounds of zinc hydrosulphite per ton of pulp treated and where the pulp has lost brightness from storage, exposure to light, or some other cause, it is sometimes possible to bring about an even greater degree of brightening.

A great deal of the lack in brightness in pulps is caused by the presence of iron in combination with various constituents of the wood of which it is composed or from which it was derived. Reduction of this iron to the ferrous state by means of sulphur dioxide or zinc hydrosulphite and treatment with minute amounts of red prussiate of potash converts the brownish iron discoloration to Turnbull's blue and a consequent increase in brightness results, which often amounts to 5 points or more *(16)*.

During the past 12 years great progress has been made in the bleaching of pulp. Much of this progress has been accomplished by bleaching in several stages with washing between stages. Probably the greatest step was the use of chlorination for the first stage *(17)*, followed by suitable washing, alkaline extraction, washing, and one or more treatments with hypochlorites maintained alkaline as long as any available chlorine was in contact with the pulp. The first commercial application in the United States of these principles was in the bleaching of kraft pulp to a brightness that, at the time, was only available (among the wood pulps) in bleached sulphite. Since that time substantially the same process has been applied to sulphite pulps, particularly on the Pacific Coast, and the procedure is standard practice. No effort is being made to enforce patents and a policy of *laissez faire* seems to have been mutually agreed upon.

In bleaching in several steps, the degree of washing between stages is important and many operators do not have the facilities or the water to do a thorough job. Under such circumstances, the use of dilute sulphurous acid will show decided improvement in the brightness of the final product and in the prevention of reversion of color on standing. Much of the improvement is probably the result of the use of an "acid flash" and some other acid would produce similar results. Sulphurous acid, however, is not too strong or active for the purpose and can be produced at very low cost when used in sufficient volume to justify sulphur burning and sulphur dioxide absorption equipment.

Not only does the use of an "acid flash" wash with sulphurous acid *(18, 19)* prove advantageous as a general practice, but work reported *(20)* on quick cook sulphite pulp gave indications that certain other benefits would result. The use of sulphur dioxide treatment with washed chlorinated pulp will give gains in brightness up to 9 points after subsequent bleaching with hypochlorite, depending upon how much chlorine and hypochlorite are used in their respective stages. The use of from 4 to 6 pounds of sulphur dioxide will give pulps of equal brightness with from 7 to 10 pounds less chlorine. By using more chlorine or the equivalent in hypochlorite, a brighter pulp will usually result when sulphur dioxide is used but the greatest benefit is gained when the total chlorine is reduced to offset the sulphur dioxide used.

In times like the present, when the use of chlorine is restricted, the use of sulphur dioxide offers a means for obtaining a maximum brightness with the amount available. Where the degree of brightness permitted

also has a ceiling, the use of sulphur dioxide may be attractive because of the greater strength at a specified brightness which is possible with the reduced use of chlorine made possible.

Results obtained in work at The Institute of Paper Chemistry when sulphurous acid was used at various points in the multistage bleaching of kraft pulp have shown that the use of 16 pounds of sulphur dioxide made possible the saving of 8 pounds of chlorine in bleaching to the same brightness standard.

The use of sulphur dioxide will also make possible pulps of greater brightness than can be obtained with the use of chlorine alone without serious loss in strength. It is also possible to obtain, through its use, a reduction in chlorine to obtain a specified brightness standard and thereby a pulp of greater strength. In all cases the use of sulphurous acid as part of the final washing operation will assist in removing the tendency of the bleached pulp to revert in brightness during storage.

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Coating Discussed at Holyoke

The New England Section of TAPPI met Friday night, November 17, 1944, to hear George Thompson of B. F. Perkins Company speak on calender rolls and F. W. Egan of the John Waldron Corporation discuss coating machines.

Mr. Thompson pointed out that supercalendering was required to impart a high finish to coated papers which are intended for high quality work. If best results are to be attained and at the lowest cost, it is necessary to give proper attention to the calender rolls. Every care should be taken to insure that the rolls are true from the time they are shipped from the manufacturer to installation in the stack. By breaking in slowly, preventing excess heat during the process, rolls can be conditioned for maximum service.

The ten basic types of coating machines were described by Mr. Egan. Because of the scope of the subject it was not possible to do more than indicate the numerous variations that have been developed from these fundamental methods. The processes mentioned are the dip, knife, cast, roll, brush, air-brush, spray, print, extrude, and strip of which the print coaters are of special interest to those who intend to coat on the machine.

It was announced that the next meeting of the Section will be held at the Hotel Statler in Boston on December 15th. An interesting meeting is planned and it is hoped that there will be a good attendance. Those intending to stay overnight are advised to make hotel reservations well in advance.

Over 100 attended Friday night's meeting. Those who registered are as follows: J. J. Aid, A. Altieri, C. Anderson, J. O. Amstoz, F. A. Barr, R. F. Blount, R. S. Bracewell, R. T. Bingham, H. T. Barker, A. M. Brooks, J. L. Barowsky, P. S. Bolton, L. W. Crouse, C. F. Collins, R. E. Clark, J. Carroll, C. Child, C. H. Child, H. Cookingham, F. E. Caton, Mr. and Mrs. G. S. Carroll, C. A. Dickhaut, H. Duston, R. D. W. Ewing, F. Egan, F. R. Felz, T. J. Flaherty, W. L. Foote, E. Fargey, H. Federhen, F. W. Farrell, J. Griffen, J. T. Goudette, R. Godin, D. Guterman, H. M. Grasselt, J. N. Hazen, A. H. Holbrook, F. Heywood, A. Holt, E. E. Hazen, W. F. Hoffman, C. I. Horton, A. E. Jones, F. Johnson, A. D. King, W. Kaufmann, W. F. Kallork, P. I. Knight, H. U. Kiely, C. G. Landes, V. A. Love, W. Lan, L. Lajoy, A. Landt, G. Leonard, J. Loomer, R. H. Mosher, H. L. Mellen, G. E. Mattson, A. H. MacKay, B. J. Mayo, Jr., G. E. Mailand, L. W. McFail, P. Nelson, F. F. Newkirk, B. R. Newcomb, E. G. Nash, H. Norton, J. J. O'Brien, H. A. Otto, R. W. Pattison, J. B. Phelps, E. A. Poirier, J. R. Reardon, W. Reardon, D. D. Ritson, T. Rogers, F. Rielly, L. W. Smith, E. W. Stucker, E. Schilling, W. Schram, F. A. Strovink, C. Pl. Slocum, N. Sixt, R. Stapley, G. Sullivan, F. W. Schneider, H. Sprague, O. A. Steffens, D. L. Swan, J. B. Stevenson, L. B. Tucker, B. E. Teale, G. A. Thompson, J. Telemko, A. M. Worthington Jr., W. Woosnam, F. Williams, C. C. Woodward, F. H. Willemain, A. K. Warner and M. Yeoman.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Stanley J. Buckman, president, Central Laboratories, Inc., Memphis, Tenn., a 1933 graduate of the University of Minnesota.

George A. Cramond, Assistant Chemist, Tullis Russell & Co., Ltd., Markinch, Fife, Scotland, a 1925 graduate of St. Andrews University.

Foster P. Doane, Jr., plant manager, Sandy Hill Iron and Brass Works, Hudson Falls, N. Y., a 1920 graduate of the Massachusetts Institute of Technology.

Burleigh M. Hutchins, plant engineer, Crossett Paper Mills, Crossett, Ark., a 1929 graduate of the University of Maine, and a 1932 graduate of the Massachusetts Institute of Technology.

William S. Kennedy, field engineer, the Bristol Company, Waterbury, Conn., a 1941 graduate of Purdue University.

Max Kleinman, secretary, treasurer and sales manager, the Ace Paper Company, 426 West Broadway, New York, N. Y.

Fleming D. Long, research chemist, Container Corporation of America, 111 West Washington, Chicago, Ill., a 1938 graduate of Monmouth College.

Hugh T. Nicolson, assistant general manager and general superintendent, District of Columbia Paper Mills, Inc., Washington, D. C., a 1924 graduate of Virginia Military Institute.

Philip B. Sadtler, chemical engineer, General American Process Equipment, 420 Lexington avenue, New York, N. Y., a 1906 graduate of the Massachusetts Institute of Technology.

TAPPI Notes

George H. Spencer, formerly of Pusey & Jones, Inc., has returned to the Torrington Company, Torrington, Conn., makers of anti-friction bearings.

Frank P. Silver, formerly of the Bowaters Newfoundland Pulp and Paper Company, is now assistant general superintendent for Price Bros. & Co., Ltd., Riverbend, P. Q.

Frank G. Calkin, formerly of the Virginia Smelting Company, is now chemical engineer for the Finch Telecommunications, Inc., Passaic, N. J.

Arthur B. Kaplan, formerly instructor at the Institute of Paper Chemistry, is now chemical engineer for Milprint, Inc., 431 W. Florida St., Milwaukee 1, Wis.

James M. McAleer has been appointed head of the Pulp and Papermill Division of the Mason-Neilan Regulator Company, Boston, Mass.

Don. L. Quinn, President of the Don L. Quinn Company, Chicago, Ill., has been appointed chairman of the TAPPI Container Testing Committee, succeeding Arno W. Nickerson. Mr. Nickerson will continue as chairman of the TAPPI Container Committee.

W. H. Graebner of the Marathon Corporation, has been appointed chairman of the newly organized TAPPI Packaging Materials Committee.

Correction in TAPPI Standard T 202 m-42. There is a typographical error in the denominator of the formula for the calculation of the Chlorine Number. The denominator should be $f \times g$ instead of $f - g$.

The Velsen mill of Van Gelder Zonen in North Holland was destroyed by the Nazis. This mill had an annual production of 100,000 tons of newsprint. Van Gelder Zonen is a corporate member of the Technical Association.

The TAPPI Nominating Committee has agreed on the following candidates for office to be voted on in January 1945. President (one year) Vance P. Edwardes, International Paper Company, Palmer, N. Y.; Vice President—Gunnar W. E. Nicholson, Union Bag and Paper Corporation, Savannah, Ga.; Executive Committeemen (three years) Worthen E. Brawn, Pejepscot Paper Company, Brunswick, Maine, William R. Barber, Crown Zellerbach Paper Company, Camas, Wash., John A. Hanson, Badger Paper Mills, Inc., Peshtigo, Wis., and James E. Wise, Kalamazoo Paper Company, Kalamazoo, Mich. The names of other candidates can be added to the printed ballot if received before December 20. Such candidates must accept the candidacy in writing and be endorsed by 25 voting members of the Technical Association.

Empire State Discusses Streambarking

The Hudson Valley Group of the Empire State Section of the Technical Association of the Pulp and Paper Industry met at the Queensbury Hotel, Glens Falls, N. Y., on Friday evening, November 17. Frank J. McCourt of the International Paper Company presided as chairman. About sixty attended.

J. A. Fritz of the Allis-Chalmers Manufacturing Company, Milwaukee, Wis., gave an illustrated talk on the Streambarker, which is a piece of equipment for removing bark from pulp logs by means of a water jet at 600 to 750 lb. per sq. in. pressure. This equipment has advantages over conventional type barkers in the reduction of wood loss, elimination of brooming and a reduction in the amount of wood which has to be recirculated due to incomplete barking. The wood coming from the barker can be maintained at a high degree of cleanliness and free of rotted wood and miscellaneous dirt.

The equipment is rugged and well built to withstand the rough usage that it gets. It is made up essentially of a conveyor to bring the wood from the log pond to a pair of bed rolls which produce a rotary and forward motion of the log under a series of three high pressure nozzles. A wire brush is set just ahead of the last nozzle to assist in removing inner bark and dirt from the log.

There are a number of factors which affect the capacity of the barker, but a general figure for all types of wood under all conditions is 10 cords per hour. Normal operation is a nozzle pressure of 650 lbs. delivering 600 g.p.m. A 350 h.p. pump is supplied for this operation. However, additional pressure must be applied to clean up frozen wood and a booster pump is recommended to raise the pressure to a maximum of 750 lb.

The standard equipment is built to handle logs from 4 to 18 inches in diameter and 8 to 8 feet in length. Special equipment is being built to handle larger diameter and longer wood which is used on the west coast.

While all of the present installations are being set up in the pulp mills it is proposed to construct a mobile unit which can be used in the woods. This will overcome one of the present drawbacks—the increase in freight costs due to the transportation of the rough wood.

Mr. Fritz answered many questions during the discussion period, following the presentation of the paper. It was very evident that a lot of interest has been developed in this type of barking equipment.

Vance Edwardes, TAPPI president, spoke about the annual meeting which will be held as usual in New York in February. He also stressed the value of local meetings and requested a more active participation by the members in the presentation of papers. Awards are available for papers presented by Junior members at local section meetings.

A motion picture titled "A Brief Stop in Hawaii," was shown through the courtesy of Sandy Hill Iron and Brass Company.

The next meeting is scheduled for December 22nd, with Dr. Edwin C. Jahn of the New York State College of Forestry as the speaker. Dr. Jahn recently returned from Sweden and will discuss the pulp and paper developments which are taking place there.

Foremanship and Safety

John Wiley & Sons has recently issued a 100 page spirally bound paper covered book entitled Foremanship and Safety by C. M. MacMillan, Associate Engineer, Safety and Security Branch, Office of the Chief of Ordnance. It is an easily read book that can be used in foreman training. Among the subjects covered are: Personal relations of foreman and worker, safety rules, responsibility in accident prevention, good housekeeping, the unsafe practice, mechanical guards, face protection, rope, chains and cables, lifting heavyweights, storage and piling, electrical hazards, maintenance and repair, minor injuries, illumination and fire.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York 17, N. Y., at $1.00 per copy.

POST-WAR PLANS IN PULP AND PAPER INDUSTRY

(Continued from page 41)

Conclusions of the Committee

Many plants reported neither economizers nor air preheaters and a large number no superheaters.

The conclusions of the committee were:

1. The post-war boiler will probably be coal fired either by stokers or pulverized coal.

2. More attention will be given to the efficient heat recovery units and waste incinerations.

3. The trend will continue to higher steam pressures. Steam plants designed for operation at 400 to 600 psi. will be more common with higher final steam temperatures by the installation of more superheaters.

4. In the case of established plants with existing low pressures, high pressure boilers will be superimposed, the high pressure unit supplying steam turbine generators exhausting into the low pressure header.

5. Boilers and furnaces will be equipped with economizers, air preheaters or a combination of the two.

6. The new steam plants will probably have to cope with coals of higher ash, lower ash fusion and lower Btu. content.

7. Suitable combustion control and metering equipment will be considered essential in all new installations.

There might be added that the economy of obtaining electric power through drop in pressure of high pressure steam through extraction turbines will be more generally recognized.

Table I shows the available kilowatt-hours of electric power that could be produced by the use of steam at different pressures and temperatures when passed through a turbine and exhausting at different pressures for use in process.

TABLE I AVAILABLE KW. IN 100,000 LBS. STEAM PER HR.
Assumed initial steam condition

Process Steam pressure psi.	200 psi. 500°F. kw.	400 psi. 650°F. kw.	600 psi. 750°F. kw.	800 psi. 825°F. kw.
100	1,100	2,800	3,800	4,500
75	1,600	3,300	4,300	5,000
50	2,200	3,900	4,900	5,600
25	3,100	4,700	5,700	6,400

The report says:

"A plant cannot operate efficiently unless it knows what it is doing. Flowmeters will help to show whether it is operating at 60 or 70%. They should be installed at the first opportunity.

"It is evident that many plants do not control feedwater equipment. Improper treatment of feedwater may lend to large heat losses caused by boiler scale and improperly controlled blowdriers, not to mention troubles from pitting, corrosion, carryover, etc."

Pulpwood and Its Preparation

The probable development in connection with the preparation of wood for pulping will continue to be in the line of increasing the cleanness of the wood in the debarking operation with a decrease in hand labor at the plant.

The recent commercial application of high pressure water jets for removing the bark from the large West Coast timber has been followed by the development of equipment for the smaller Eastern pulpwood.

Already the system has been applied by a number of plants on the West Coast and also by a few in the East, with others in prospect. Besides saving in labor, it is said that there is a material reduction in wood loss and increase in cleanness due to the avoidance of broomed ends of the sticks common with drum barkers.

It is interesting to recall that the beginning of the general use of the continuous drum barker was in 1916, just prior to the entrance of United States in the first World war.

Before this, a number of attempts had been made to use tumbling drums both continuous and batch operating, but apparently the industry was not ready for the change from the disk barkers.

Following a number of installations in the East and Middle West of the Bache-Wiig drums operating on the batch system, the American (Continuous) Barking drum was introduced and this was followed almost immediately by others of somewhat different design and construction.

The result was a complete revolution in the industry of the system of wood preparation.

As mentioned, the chief drawback of the barking drum has been the broomed ends carrying considerable dirt in the form of bark and sand.

The Thorne Barker, also continuous, of which several have been installed, avoided this trouble but it has never been a serious competitor for the continuous drum barker.

It would appear that the so-called "Stream Barker" also operating continuously and using water jets at 650 psi. is a development that may take its place in the industry in spite of its relatively high power requirement.

In the years before the war, however, in the sections such as the East, Middle West and parts of the South, where pulpwood had to be shipped long distances, there was an increasing trend towards peeling of the wood before shipment.

Besides the advantage of decreased volume and weight to be handled, the use of peeled pulpwood obviated the problem of bark disposal at the plant.

As a result, with the change to peeled wood the drum barkers which had previously been installed were used as wood washers and the wood was further cleaned by hand axes, knot saws or borers and machines known as "wood peckers" to complete the process.

To save the labor of peeling by hand in the woods or at the point of shipment, some promising development had been made of portable machines with rapidly rotating swing hammers to remove the bark without injury to the wood.

It may reasonably be expected that after the war and when labor conditions become normal, the trend towards peeled pulpwood will again be resumed.

If this should be the case, it would be to the advantage of the paper mills to give their active support towards the further development of portable peeling machines. At their present stage the principle of operation appears to be correct but their construction has been altogether too light for continuous usage.

On the West Coast other developments have been made on a portable machine for the production of pulpwood and even chips from the smaller logs usually discarded in the logging operations.

Mechanical Pulping

It may be expected that after the war most of the larger plants that were equipped with handfed pocket grinders will replace them with modern ones of larger capacity per unit and at a material saving in the cost of labor.

It is unlikely, however, that pocket grinders will be altogether superseded, particularly in paper mills making a range of groundwood specialty papers for which pulps of different qualities and physical characteristics are required.

The magazine grinder of the hydraulic pressure type was introduced from Europe just prior to the last war and when built here, many installations were made.

Later, a European continuous magazine grinder was brought out and almost at the same time one of American design, differing somewhat in details of construction, was developed, both of which found favor. These two machines were later combined and became known as the Continuous Grinder. In the newsprint mills built in Canada in the 1920's and 1930's magazine grinders of both hydraulic and continuous types were installed.

While it would appear that at first the Continuous Magazine was more in favor, in recent years the trend was more toward the Hydraulic Magazine type.

To replace lines of small pocket grinders in existing plants without the necessity of extensive plant construction, the Great Northern hydraulic grinder was developed.

This has a capacity equal to the magazine grinders but without the high magazines to hold a supply of wood. Several installations of this type have been made and have operated satisfactorily.

Just prior to the present war, considerable investigation was carried out with higher grinding speeds, increased pressures and both of these factors as influencing the rate of pulp production, its quality and the power consumed per ton of pulp at the same time increasing the unit pressure of grinding.

Considerable savings in power have also been obtained by a lowering of the pit consistency and at the same time maintaining the temperature.

The possibilities of engineering research and development in the making of groundwood are, however, by no means exhausted. Engineers who have made a study of the process contend that less than one per cent of the power used in grinding is applied to the production of pulp, the remaining ninety-nine per cent being used in friction.

Besides the power used in grinding a ton of groundwood which is on the average about 70 horse-power days, some additional power is applied to refining the screen rejections which amount to approximately 6% of the total.

Bleaching Groundwood

An important development recently announced by E. I. Dupont de Nemours Company and awaiting only the termination of the war for possible wide applications is the bleaching of groundwood by the use of sodium peroxide.

While bleaching of groundwood with bi-sulphites and hydrosulphites has been practised to some extent, the effects are too transitory to warrant the expense.

With sodium peroxide, however, it appears probable that the bleached groundwood of greater permanence may replace much of the bleached soda pulp used in certain of the higher quality magazine papers, as well as greatly improve the brightness of newsprint, hanging papers and groundwood specialties at a reasonable increase in cost.

The application of this development would broaden the use of groundwood and, to the extent that it replaced chemical pulp, proportionately reduce the amount of pulpwood consumed in the higher grades of printing papers.

Other Methods of Making Mechanical Pulp

In 1924, W. H. Mason developed the Masonite Process for reducing wood waste or chips to a pulp suitable for fiber insulation and hard boards. This was known as the "explosion process" on which steam at 1200 psi. is used to soften the chips and force them through a restricted orifice by which they are disintegrated to a coarse fiber, to be formed afterwards into wall board.

Later in Sweden the Asplund Defibrator process was developed, in which the chips are softened by application of low pressure steam, the disintegration to fiber being accomplished by means of an attrition mill.

Both of these processes have been used successfully in this country—the former for wall board and the latter for preparing fiber used in roofing papers, sheathing and similar products in combination with roofing rags.

An important development of the Asplund Defibrator process is being carried out in this country with considerable success and known as the Defibrator-Chemi-Pulper.

A series of reaction chambers are used in which the chips are subjected to a chemical reaction with the steam to soften the wood more completely and to dissolve part of the lignin, the defibering being completed in the attrition mill.

By extension of the reaction chamber, thereby providing a longer time for chemical treatment, a product is obtained representing approximately 80% of the dry weight of the wood, suitable for corrugating board and for filler material in multi-cylinder boards of different types.

It would appear possible, by still further increasing the chemical reaction time that a continuous chemical pulping process might be the final result. It is understood that research along this line is progressing.

Chemical Pulp

The two main processes for making chemical wood pulp in this country are the sulphite and the sulphate. While the caustic soda process is still employed chiefly in pulping hardwoods in paper mills making book and the higher grades of magazine papers, no new plants for this process have been built for many years and the soda process may be regarded as static. The same is true of other processes in which sodium sulphite is the chemical used.

The numerous sulphite mills of large capacity built on the West Coast during the past two decades and the vast expansion of the sulphate mills in the South during the same period would, it is believed, preclude further expansion for some years.

However, as previously mentioned, plans are on foot for post-war construction in Central Canada of three sulphate mills the product of which is to be bleached and presumably supply the needs of the parent mills located in United States.

Sulphite

The most radical departure from the long estab-

lished sulphite practice which is seen as a possible post-war development is in the use of magnesium oxide instead of lime, for the bisulphite, the recovery of the magnesia and sulphur dioxide and the generation of steam by combustion of the lignin in the recovery process.

The magnesia process has been demonstrated on a semi-commercial scale and when peace returns it is understood that it will be applied in the mills where it has been investigated. If it should prove successful and become widely adopted, it would result in a material reduction in the quantity of purchased chemicals and fuel required by sulphite mills, as well as to solve permanently their stream pollution problem.

The steam generated by the chemical recovery should, as is the case with sulphate mills, largely if not entirely supply the requirements for carrying on the process. The recovery of the chemicals is said to be approximately 85%.

In Canadian sulphite mills, some tendency is noted toward the substitution of pyrites as a source of sulphur, using the system where pyrite concentrates are burned in suspension.

In sulphite mills operation, the post-war practice will doubtless follow the previous trend. More general adoption of equipment for automatic cooking control, the Chemi-Pulp Process using hot acid, forced circulation in the digesters, and indirect heating will, it is expected, proceed as before the war restrictions came into effect.

With the need for alcohol, especially in synthetic rubber manufacture, much publicity has been given to the possibilities of alcohol production from the sugars in waste sulphite liquor. Several plants, in Canada and on the West Coast, are being built or projected following the one already in operation, but as post-war projects, due to well known economic factors, it is very doubtful if they will survive.

The whole subject of the utilization of waste sulphite liquor and the profitable recovery of by-products from it has not materially changed in spite of the views of enthusiastic theorists.

Except for the possibilities of the magnesium bisulphite cooking and recovery process, the post-war development of sulphite pulping is likely to proceed along the same lines as those prior to the war, toward the production of a higher quality of product for the market and in grades adapted for dissolving purposes.

Considerable expansion in the production of rayon appears probable and the use of sulphite pulp for this purpose should to a considerable extent take what went into munitions during the war.

The final result would be that in the return of peace the present sulphite mills should be of sufficient capacity to supply the needs of paper mills, particularly if the usual volume of pulp imports are resumed.

Sulphate Pulp

In sulphate pulping the main new development to be looked for is the perfecting of a system of continuous digestion to replace the batch operation of digesters in plants where it is applicable.

As a matter of fact there is no more reason for batch digestion than for batch bleaching or for stock preparation in beaters in the large plants.

In sulphate mills supplying the kraft bag and paperboard mills, the entire subsequent operation is continuous, which makes it particularly desirable and appropriate that the same continuity be applied to the pulp digester.

A continuous digester was designed and built several years ago and recently its possibilities appear to have been sufficiently recognized that one will be in operation as soon as the war restrictions are removed.

The Defibrator Chemi-Pulper, previously mentioned, now used for making a pulp suitable for corrugating board may be another answer to the problem of continuous production of sulphate pulp for the standard grades of kraft bag papers and kraft container boards. The further development of this system will be watched with interest.

The trend has been increasing toward bleaching sulphate pulp for use in book, writing and other high grades of papers in which the characteristics of sulphate pulp are particularly desirable.

One of the most important applications of bleached sulphate pulp is for the making of paper milk bottles and other liquid containers. The further expansion in use of these products might be expected to have as marked effect on the sulphate industry as was brought by the development of the multi-wall bag and the extensive uses found for it.

Paper Manufacture

In considering the Fourdrinier machine it may be said that the different designs and construction with the proper auxiliary equipment for making the different types and weights of paper fall into four classes.

The first is the older and conventional Fourdrinier adapted for the slower speeds below 1,000 feet per minute, and equipped for making fine papers and specialties.

The second is the machine built for speeds from 1,000 to 1,500 f.p.m. for newsprint, magazine and wrapping papers.

The third type of Fourdrinier machine includes those designed especially for the highest speeds up to 2,000 f.p.m. and used in making toilet tissue and other very light papers.

The fourth includes machines designed and equipped for Fourdrinier kraft board and similar heavy products.

While the first type has remained quite completely standardized as to design and in details of auxiliary equipment, the other three are still passing through a period of development. With increasing speed of operation, the problems of stock delivery, sheet formation and water removal by drainage, suction and pressing are the chief problems to be solved.

In stock delivery from the screens to the wire, the designs of flow boxes and slices show the widest diversity which in itself would show that the difficulties have not yet been overcome. All of the machine builders have each its patented design besides others designed by the paper mills themselves.

It would appear that considerably more research into the hydraulics and physics of fiber suspensions will be needed before the problems of sheet formation and water removal are solved.

To promote and control water removal on the wire numerous expedients have been applied. Such are the number and size of the tube rolls as well as their material and covering, forming boards and baffles between the tube rolls, suction boxes both before and behind the breast roll, the number and arrangement of flat vacuum boxes the vacuum carried, the systems for graduation of vacuum and its control as well as the design and operation of the suction couch rolls.

The use of a shake on the wire is held by some

to improve formation and promote water drainage, and others hold the opposite opinion. Some contend that sloping the wire by elevation of the breast roll increases the rate of drainage, while others hold otherwise.

The divergent methods used and the different opinions held all tend to the conclusion that little is known of the principles governing water removal and could well be the subject of organized engineering research.

How little is known of the principles involved in the operation of a paper machine at high speed is shown when a mill decides that the speed should be increased 100 f.p.m.

To accomplish this modest advance in speed and at the same time maintain the same machine efficiency and quality of product may require months and perhaps years of trial in adjustments of the machine, its auxiliary equipment and the condition of the stock itself.

When another advance in speed is to be made, the same procedure and series of trials and changes have to be repeated.

When it comes to the presses on high speed machines by which the maximum sheet dryness is desired consistent with the paper quality and characteristics, the diversity of equipment and operating practice also indicate how little is really known of the principles involved.

When the advance is finally accomplished and another step forward is decided upon, the same series of changes and trials have to be repeated.

It may indeed be said with considerable truth that the development of the Fourdrinier to its present state since the time of Donkin, who first brought it into commercial operation, has been through a long series of trials and experimentation.

The Cylinder Machine

Much of what has been stated regarding the Fourdrinier is equally true of the changes in constructional design and methods of operation of the multi-cylinder machine.

The diversity of design in stock delivery equipment, in the vats themselves and their arrangement, illustrate the grouping of engineers and operators towards overcoming what are generally inherent defects in an otherwise valuable system for the production of paper boards from a combination of stock furnishes.

Conclusion

The post-war plans in the paper industry for the immediate future at least will be along the line of overcoming the lag in renovation and replacement of the auxiliary machinery that has been delayed during the war years. They will also involve the efforts to apply the uses of products developed for war uses to peace time application.

Companies with foresight have already been working actively towards these ends and as soon as the facilities are available will be extensively in the market for all types of pulp and paper mill equipment and auxiliary parts.

WPB Approves Paper Machinery Orders

WASHINGTON, D. C., November 22, 1944—Orders placed for paper mill machinery and mill construction, together with orders awaiting approval, indicate new business in process or contemplated for the industry at a rate of more than $80,000,000 a year, the Paper Division of the War Production Board said today.

The Paper Division has approved orders for new paper mill machinery approximating a rate of $37,000,000 a year, as indicated by the $9,250,000 in orders approved in the three months from August 15, 1944. In addition, the paper mill machinery industry has about $4,000,000 in orders pending, the Division said. More than $20,000,000 in authorizations for mill construction have been made, with about $12,000,00 more awaiting approval. There are probably $5,000,000 more in orders for new equipment costing less than $2,500, which are approved in WPB field offices and not reported to the Paper Division, and repairs and replacements are estimated at more than $2,000,000, the Division pointed out.

Problems of reconversion in the paper mill machinery industry were discussed at a recent meeting of the WPB Pulp and Paper Machinery Industry Advisory Committee. The industry will have no major task of reconversion, since it has continued to manufacture paper and pulp machinery during the war, WPB officials indicated.

Supplies of materials and component parts will be the chief problems of the industry after "Victory-in-Europe" Day, WPB said. Employment in the industry, said to have been about six thousand before the war, has risen to about ten thousand today and indications are that there will be a falling-off to about the pre-war figure with the cessation of hostilities in Europe. However, it was estimated that with the backlog of orders on the books, employment will soon increase after "V-E" Day to higher than before the war and probably reaching 7,500 within six months. Plans which would tend to reduce this period of transition to nearer four months, were discussed and included a suggestion that orders for components and parts be placed now for delivery after "V-E" Day.

Some difficulty was said to be presently encountered by the paper mill machinery industry in securing castings, as foundries were reported to be extremely short of labor, especially in New England. Continued control of paper mill machinery under Limitation Order L-83 was recommended by the industry committee as well as the granting of priorities as a means of building up the industry without interfering with wartime production. The desirability of having ratings higher than AA-5 was urged by one industry committee member, who pointed out that an AA-3 rating was needed for acquiring components and parts for incorporation in mill machinery.

Discussion of Order L-83 revealed that its continuance was not believed necessary for any long period after "V-E" Day if materials become available in adequate quantities. It was suggested that the $2,000 limit on maintenance and repairs, and control of transfers of used mill machinery should be eliminated from the order as soon as possible.

Procedures under the new Army and Navy pre-termination settlement agreements were explained by Army officers, who said that under the system of anticipating contract settlements, considerable time could be saved by both the Government and the contractors. They advocated making contracts with the 17 local determination coordinating committees in the field.

Oliver H. Clapp Leaves for Brazil

Oliver H. Clapp, a vice-president of Stein, Hall & Co., Inc., New York, manufacturers and distributors of starches, gums and dextrines, and importers of burlap and other commodities, has left for Brazil on a business trip. He will be away four or five months.

How Government Surpluses of Paper and Other Goods Will Be Disposed Of

By C. A. Dickerson

Your government has bought billions of dollars worth of every imaginable type of material necessary for running a war. Naturally, everything does not come out even. You don't use the last piece of paper; the last drop of ink. Moreover, as the war progresses the need for office equipment lessens as certain war agencies are cut down or disbanded. As a result surpluses will develop.

Now, your government wants to get rid of these surplus goods for several reasons. First, they are needed elsewhere—by business and industry. They represent a vast sum of the taxpayers' money, a portion of which can be recovered by selling the surplus back to business and industry. And, most important, unless these surplus goods are disposed of now and in orderly fashion, and not held to be dumped on the market after the war, the problem of industrial reconversion may become more difficult through the disruption of our domestic economy.

It all seems very simple, doesn't it? The government has things to sell which somebody wants to buy. So they advertise what they have to sell and at what prices they will sell and the buyers buy it. Substantially, that is true—but with this notable reservation: surpluses must be sold where they are needed most and when their sale will least disturb domestic economy. That requires some form of master sales control.

C. A. Dickerson

The contributor of this article is head of the Paper, Paper Products, Office Supplies and Equipment Division of the Office of Surplus Property of the Procurement Division of the U. S. Treasury Department. Mr. Dickerson, who is on leave of absence as president and treasurer of the Subin Robbins Paper Company, Cincinnati, Ohio, is also a member of the Post-War Planning Committee of the National Paper Trade Association.

Creates Office of Surplus Property

Recognizing the complexity of the problem, the President ordered the formation of the Office of Surplus Property to facilitate the orderly disposal of surplus war goods.

Last July I was asked, along with seven other business men, to come to Washington and work with the Procurement Division of the Treasury Department in setting up an organization to dispose of surplus consumer goods. Each of us was to supervise the sale of a classification of goods with which he had been identified in business. The eight divisions which were formed were these: Furniture, Hardware, Machinery, Automotive, Textiles and Wearing Apparel, Medical and Surgical, Paper and Office Supplies, and General Products.

Each division has further sub-classification. For example, Division No. 8, which I head—Paper, Paper Products, Office Supplies and Office Equipment—is concerned with the sale of these items: Paper (except building paper), Paper Stationery, Paper Bags, Die Cut Paper Products, Molded Pulp Products, Miscellaneous Converted Paper Products, Envelopes, Stationer's and Office Supplies, Artists' Materials, Products of Printing and Publishing industries, Office Machines, Cash Registers, Desk Sets, Gummed Products, Glass Deskware (including paperweights, inkwells, and similar articles).

Establishes Regional Offices

One of our first steps was to establish eleven Regional Offices throughout the country, each of which has eight commodity departments to conform with the Central Office in Washington. The list of these Regional Offices and the States they serve are as follows:

Region I—Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.

Region II—Pennsylvania, New Jersey, New York.

Region III — Washington, D. C., Delaware, Maryland, North Carolina, Virginia.

Region IV — Indiana, Kentucky, Ohio, West Virginia.

Region V—Illinois, Michigan, Minnesota, North Dakota, South Dakota, Wisconsin.

Region VI—Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee.

Region VII — Arkansas, Louisiana, Oklahoma, Texas.

Region VIII—Iowa, Kansas, Missouri, Nebraska.

Region IX—Colorado, New Mexico, Utah, Wyoming.

Region X—Arizona, California, Nevada.

Region XI—Idaho, Oregon, Montana, Washington.

It is important for you to know which Regional Office serves your State because these offices SELL the surplus war goods. Our Central Office in Washington directs and coordinates the program establishes policies and procedures—but you do not buy from the Central Washington Office.

The setting up of this organization was no small task—and not without its headaches. For the past four months we have devoted our entire time to this job and I could go on for pages describing the work

in detail. But, I realize from the number of requests for information which I have received from men in the paper and office supplies field that what you want to know most of all is the answer to this question: "How can I buy surplus war goods?" I shall attempt to answer that question here as briefly and as simply as I can.

How to Buy Surplus Goods

First of all, the surplus goods which are available for sale will be advertised in the "Surplus Reporter." Under this plan the Surplus Reporter for the Paper, Paper Products, and Office Equipment Division will be mailed once each month.

In this publication will appear, not only the goods available in your Region but also the good available in all Regions over the country. It will not be necessary, therefore, for you to contact all eleven Regional Offices to find out what and where these surpluses are.

The "Surplus Reporter" will list every item in surplus which is ready and prepared for sale . . . tell in which regional office district it is available . . . give a complete description of the item, and indicate the method of sale—whether by formal or informal bid, by fixed price, by negotiation or otherwise.

If you wish to buy any items listed in the "Surplus Reporter" this is what you must do: Contact your Regional Office and tell them of your desire to buy. If the sale is to be by invitation to bid you will be sent a form to make such bid. If the sale is by fixed price you will be advised of the price. If the sale is by auction or negotiation you will be advised what steps to take in order to participate in the sale.

The one important point to remember, however, is this: the "Surplus Reporter" will be sent ONLY to those firms who are on the Mailing list of the Office of Surplus Property. If your name is not now on that list it is necessary for you to write to your Regional Office requesting that your name be placed on the list. You will be sent a check list on which you can designate the type of goods you are interested in buying.

Complete List of Regional Offices

For your guidance in contacting Your Regional Offices here is the complete list. Direct your correspondence to the following:

Regional Director,
Procurement Division,
U. S. Treasury Department,

at the address given for your particular Regional Office:

Region I—Park Square Building, Boston 16, Mass. (Phone: Hubbard 2870).

Region II—Empire State Building, New York 7, N. Y. (Phone: Chelsea 3-8950).

Region III—1126 21st street, N.W., Washington 25, D. C. (Phone: Executive 6400, Extensions 5035 and 5036).

Region IV—Commercial Arts Building, 704 Race street, Cincinnati2 , Ohio (Phone: Parkway 7160).

Region V—209 South LaSalle street, Chicago 4, Ill. (Phone: Franklin 9430).

Region VI—Belle Isle Building, 20 Houston street, Atlanta 3, Ga. (Phone: Walnut 5081).

Region VII—609 Neil P. Anderson Building, Fort Worth 2, Tex. (Phone: 2-1287).

Region VIII—2605 Walnut street, Kansas City 2, Mo. (Phone: Victor 5952).

Region IX—7th Floor, Exchange Building, 1030 15th street, Denver 2, Col. (Phone: Keystone 4151).

Region X—30 Van Ness avenue, San Francisco 2, Cal. (Phone: Underhill 1922).

Region XI—2005 Fifth avenue, Seattle 1, Wash. (Phone: Main 2782).

To sum up—If you wish to buy surplus war goods you must do so through your Regional Office. If you wish to know what surplus goods are available you must consult the "Surplus Reporter" which will be issued once every month for the Paper, Paper Products, Office Supplies and Office Equipment trades and which will list all items in the categories in which you are interested and show where these goods are available. If you wish to receive the "Surplus Reporter" you must apply to your own Regional Office, fill out the check list designating the categories of goods in which you are interested, and return the check list to your Regional Office.

It is a simple, workable, efficient plan for enabling you to buy what you need from the government's surplus war stocks. It has been designed to help you —so use it.

I shall feel that the time I have taken away from my own company and devoted to this work in Washington has been well spent if, first, through my efforts the government can realize more money from the sale of surplus paper, paper products, office supplies and equipment; second, if you use this plan to secure needed goods and are thus able to carry on your business more efficiently and more profitably; third, if these sales can be made without a damaging impact on industry or the country's domestic economy.

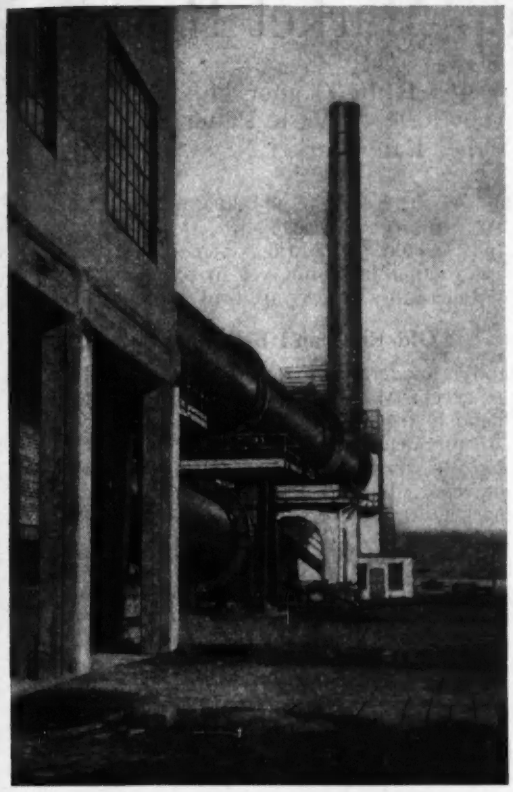
Looking Towards Peacetime Production

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., November 11, 1944—Frank A. Juckett, president of the Sandy Hill Iron and Brass Works, has issued a statement regarding government orders and prospects for other business. He stated that practically the entire business of the concern for the past several years has been on government contracts and some time ago arrangements were made for the production of equipment for the navy in connection with ship building programs. As ship building programs have progressed, according to Mr. Juckett, the company's position has changed and during the past several months the larger contracts have been nearing completion while others have been cancelled. For these reasons the company has been approaching a period of curtailment of operations which has necessitated reduction of the several shifts to a less number. He also said that it is doubtful if the future requirements will be anything like those of the past and the concern is looking towards peacetime production. Future business and plans to produce that business will make it possible to operate without alternating busy and less busy periods, according to Mr. Juckett.

Lily-Tulip Co. To Acquire Stock

The Lily-Tulip Cup Corporation has agreed to acquire all issued and outstanding capital stock of the Universal Paper Products Company of Illinois, according to word announced in Chicago financial circles this week. The acquisition will be made in exchange for 24,000 shares of the former company's common stock. The investment would approximate $699,000 on the basis of market value of Lily-Tulip shares.



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★3 The "Phosaloy" mark on a wire is our guarantee that you are receiving the highest quality Phosphor bronze in Appleton Wires. Wire drawing and annealing standards are set based upon research and through constantly checking performance on the paper machines to obtain maximum wear and pliability.

The Phosaloy mark is a badge of quality.

LOOK FOR IT.

Appleton Wire Works, Inc.

APPLETON, WISCONSIN

New York Paper and Pulp Market Review

Government Requirements For Paper Expected To Be Higher This Month—Pulp Production Up 5 Percent Above 1943—Waste Paper Receipts Up 74,000 Tons In September—Other Late Market News.

Office of the PAPER TRADE JOURNAL,
Wednesday, November 22, 1944.

Prospects for an adequate supply of paper for civilian use in the next few months continue unfavorable. Paper will become an important element in the rehabilitation of government, industry and social reestablishment in the war-torn countries of Europe, notwithstanding their level of economic activity, states the Department of Commerce in a late report.

Summarizing the paper situation, the Department states that, October requirements of the war agencies for paper and paper products, rose to the peak of war demands and in the current month is expected to mount higher. The Department adds that it will be many months before supplies of paper and paper board are adequate to take care of all existing demands and it is likely that the pulp and paper industry will be one of the last major consumer goods industries to achieve a production level equal to or in excess of demands.

Paper production for the week ended November 11 was estimated at 92.3%, compared with 89.6% for 1943, with 89.7% for 1942, with 106.5% for 1941, and with 84.7% for the corresponding week for 1940.

Paper board production for the week ended November 11 was 96.0%, compared 95.0% for 1943, with 83.0% for 1942, with 99.0% for 1941, and with 77.0% for the corresponding week for 1940.

Domestic output of paper, all grades, for the first 9 months of 1944 aggregated 12,889,000 tons, compared with 12,798,000 tons in 1943, an increase of 0.7%. Total paper board output was 6,755,000 tons in the same period, compared with 6,475,000 tons in 1943, an increase of 4.3%.

Wholesalers' sales, reported by the Department of Commerce, for September, showed a decline of 9%, the index declining from 164.8 in August, to 150.00 in September. Wholesalers' inventories also declined 1% to an index figure of 97.8.

Wood Pulp

The current trend as charted by the Forest Products Bureau of the War Production Board, in the new supply of wood pulp (domestic output plus imports), continues downward, as does domestic production and consumption. Imports are also downward and the trend of exports is slightly upward.

Production of pulp for the 9 months of 1944 was about 5% above the like period in 1943, imports about 7% below, and the new supply 3% above last year. Consumption declined slightly and exports for the period were about 21% under the 1943 figure. Output for the 9 months of 1944 averaged about 2,500,000 tons quarterly, with consumption 2,735,000 tons; imports about 298,000 tons, and exports about 52,000 tons quarterly. Total domestic production for 9 months of 1944 aggregated 7,488,000 tons, compared with 7,144,000 tons in 1943, an increase of 4.8%.

Rags

Demand for new cotton cuttings continues active, with mill buying good in all papermaking grades. Prices are firm at ceiling levels.

Demand for old cotton rags is moderate at this date, with roofing mills not yet in the market for substantial quantities. Prices are firm at ceiling levels.

Old Rope and Bagging

Demand is moderate to good for most grades of old rope, except Manila and sisal, for which fibers mill demand is urgent to fulfill essential military and civilian requirements. Prices are at ceiling levels.

Demand for scrap bagging continues slow, with no indication reported at this date of any material change in the market. Prices are soft and continue nominal.

Old Waste Paper

Mill receipts of waste paper for the first 9 months of 1944, reported by the Department of Commerce, aggregated 6,330,000 tons, compared with 5,329,000 tons in the same period in 1943. September receipts totaled 573,000 tons, compared with 499,000 tons in 1943, and with 418,000 tons for September 1942.

The Boy Scout collection campaign which ended September 30, is reported a success. Final figures of collections are not yet available.

Twine

Demand is active for many grades of twine. No important change in the supply situation has been reported this week. Prices are firm.

Buys Control of Keith Paper Co.

The Deerfield Glassine Company of Monroe Bridge, Mass. has exercised its option of obtaining controlling interest in the Keith Paper Company, Turners Falls, Mass. The amount of stock involved is 10,207 shares. The exercising of Deerfield Glassine Company's option, combined with profitable operation has resulted in the Keith Paper Company making the final payment on a Reconstruction Finance Corporation loan, the original amount of which was $375,000.

The Keith Paper Company has been under Deerfield Glassine Company's management since early 1939. A rehabilitation program started at that time has resulted in greatly increased production and over-all efficiency. This program has included large expenditures for new equipment and high maintenance expense so that the Keith Paper Company is now considered to be in a good competitive position.

Regardless of the improvements already made in the manufacturing facilities, the company plans to spend over the next year or two up to $175,000 for additional new equipment which will further strengthen its position. Some of this equipment is already on order and the rest will be ordered as fast as conditions warrant.

During the past few years the company's production has been devoted more and more to high rag content papers, while at the same time other very attractive specialties have been developed.

30% LESS POROSITY

FIBERTEX – A Better Tub Size For Better Papers

FIBERTEX is a specialty tub sizing with multiple operating and finishing advantages for improving the strength, uniformity and surface of quality papers.

Actual production tests prove that FIBERTEX — *with its higher molecular weight than enzyme converted starches of the same viscosity* — produces a greater film strength and a higher film continuity which reduce the porosity of papers as much as 30%.

Too, the accurate control of National's starch converting operation insures a uniform viscosity when the tub size is cooked to the specified Beaumé.

And finally, FIBERTEX with its low sensitivity to temperature change, is not affected by commercial variations of 15° to 20° that normally influence the amount of size picked up and that cause objectionable variations in surface quality.

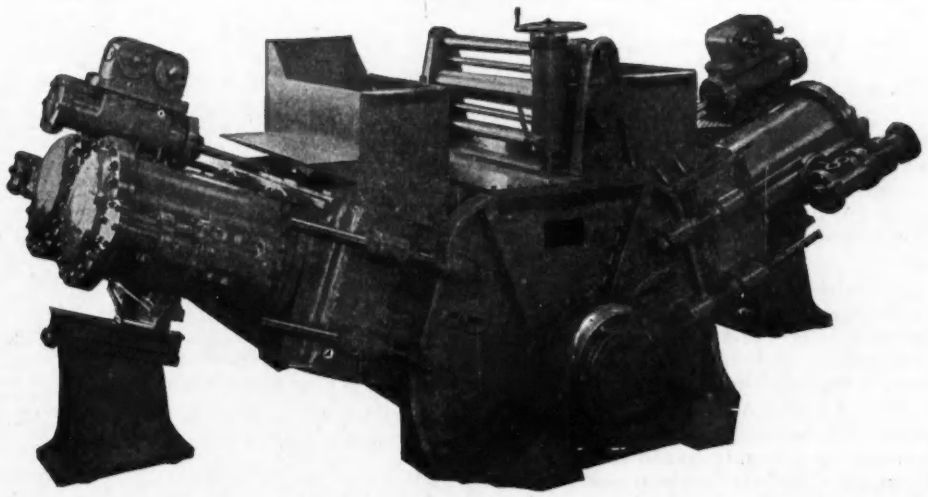
National is interested in solving difficult problems involved in paper coating, beater, tub and calendar sizing. Your inquiry will receive prompt attention. 270 Madison Avenue., New York 16, and all principal cities.

National STARCH PRODUCTS

STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

THE GREAT NORTHERN GRINDER

U. S. Patent No. 1757031



The Great Northern Grinder gives your mill new possibilities for profitable production, through: 1. Large grinding area; practically continuous grinding. 2. Low headroom; no overhead filling loft, no expensive wood-elevating equipment; may be installed in most existing grinding rooms. 3. Positive hydraulic pressure applied close to face of stone. 4. Quick, automatic delivery of pre-measured wood charges; no binding or grinding of wood on end. 5. Water conveyor: simple, inexpensive; keeps wood in view for inspection; removes loose dirt and bark. 6. Stones easily installed, inspected, adjusted and burred. 7. Healthy working conditions: no fog. These advantages insure minimum labor and maintenance costs, reduction of labor hazards and maximum production of high quality pulp. Over eighty Great Northern Grinders in use.

MONTAGUE MACHINE COMPANY, Turners Falls, Mass.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, November 22, 1944.

BLANC FIXE—Prices on blanc fixe continue to conform to prevailing levels. Demand is reported fair. The pulp is quoted at $40 per ton, in barrels, at works. The powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—All-over demand is reported heavy. Production is high and supply and demand is reported fairly well balanced. Quotations are unchanged. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound f.o.b. shipping point.

CAUSTIC SODA—Demand very heavy. Production heavy, but under demand. Market reported tight. Prices unchanged. Solid and flake scarce. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CHINA CLAY—Current demand is reported moderate on many grades of china clay. Quotations unchanged. Domestic filler clay is quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—All-over demand heavy with market reported fairly satisfactory at this date. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—The rosin market reports prices unchanged on some grades this week. "G" gum rosin is currently quoted at $5.79 per 100 pounds, in barrels, at Savannah. "FF" rosin is currently quoted at $5.75 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $6.06 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake continue to be reported unchanged. Demand fair during the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk. Chrome cake is currently quoted at $16 per ton. All quoted prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand for soda ash is reported to absorb current production. Bagged lots delayed by lack of labor. Prices continue to conform to prevailing levels. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Corn market very firm. Shipments under last week, but relatively high. Demand continues heavy. Prices unchanged on starch. Pearl is quoted at $3.72 per 100 pounds. Powdered starch is quoted at $3.83 per 100 pounds. All prices in bags, car lots f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand good. Supply situation is reported satisfactory for the week. Prices of the commercial grades are currently quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $1.85 per 100 pounds. All prices in bags, car lots, f.o.b. works.

SULPHUR—Current consumption of sulphur continues heavy. Market situation unchanged. The quotation on annual contracts continues at $16 per long ton, f.o.b. mines. The current price on contracts at Gulf Ports is $17.50 per long ton.

TALC—Demand reported moderate. Domestic grades are currently quoted at from $16 to $21 per ton at works.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	*$58.00	@	—
Sheets	66.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	2.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*48.00	"	—
Sgl. Mla. Lt. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	32.20	" 37.75	33.35	" 39.25
85% Rag	....	"	29.90	" 35.00
75% Rag	23.00	" 27.00	24.15	" 28.25
65% Rag	....	"	22.80	" 27.75
50% Rag	18.70	" 22.75	19.90	" 24.25
25% Rag	16.40	" 20.00	17.55	" 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$10.55	@ $12.75	$11.70	@ $14.25
No. 2	9.65	" 11.75	10.80	" 13.25
No. 3	9.20	" 11.25	10.35	" 12.50
No. 4	8.90	" 10.75	10.05	" 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00 @ 82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	82.00
S. Semi Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

Technical Service on Paper Dyes

To help you duplicate a sample or create a sheet to a new specification, National Technical Service is prepared to suggest the stock composition and dye formula that will meet your needs.

Remember—we invite your color problems and welcome requests for National Technical Service.

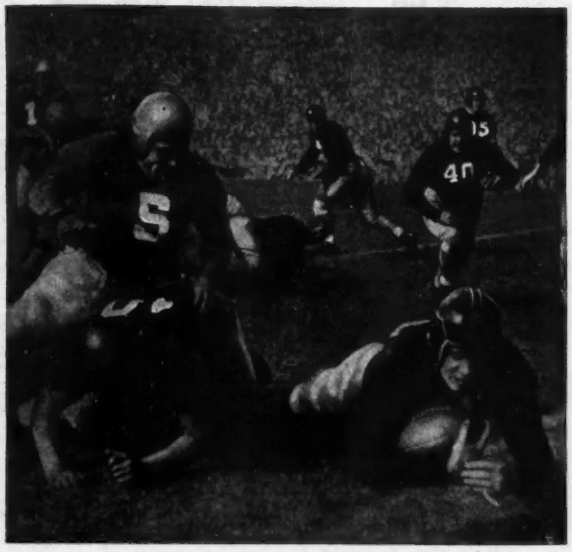
National Paper Dyes

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET NEW YORK 6, N. Y.

BOSTON PROVIDENCE CHICAGO PHILADELPHIA SAN FRANCISCO CHARLOTTE GREENSBORO ATLANTA NEW ORLEANS CHATTANOOGA PORTLAND, ORE. TORONTO



TOUCHDOWN!

Winning touchdowns come from tightly-knit teamwork

Team up with the Corn Products technical staff . . . always at the service of the paper industry . . . ready to assist manufacturers with any of their problems concerning Starches, Gums, Syrup and Dextrines.

AMIJEL
(for the beaters)

LAM-O-DEX
(for laminating)

CORAGUM
(for corrugating)

STARCH
(for enzyme conversion)

Corn Products Sales Co.
17 Battery Place
NEW YORK 4, N. Y.

Old Rags

White, No. 1—			
Repacked	*3.80	●	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

Raw Dark Cuttings	2.25	●	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	●	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¼
Light Silesias	.05¼
Black Silesias, soft	.03¼
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01¼
Fancy Percales	.04¼
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings— (Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	4.50
No. 1 Clean bright—			
Sisal Strings			.04
No. 2 Clean bright—			
Sisal Strings			.03
Sisal Jute	.03½	"	.03¾
Scrap—			
No. 1	1.25	"	1.30
No. 2	1.75	"	1.80
Wool Tares heavy	4.00	"	4.20
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings			

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	—	●	2.50
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	—	"	1.55
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Car Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	—	"	2.75
South American	—	"	3.00
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.50
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¾	"	.05
New White No 1.	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06½
Underwear Cutters, Unbleached	.05¼	"	.06
Silesias No. 1	.06	"	.06½
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06½
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03½
Corduroy	.03¾	"	.03¾
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¾	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roonng Kags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—